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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	8535-029-999	Total Pages	307
First Named Inventor or Application Identifier			
Nehls et al.			
Express Mail Label No.	EL 452 479 866 US		

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Assistant Commissioner for Patents
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Washington, DC 20231

- ☒ Fee Transmittal Form
Submit an original, and a duplicate for fee processing
- ☒ Specification [Total Pages 84]
(preferred arrangement set forth below)
 - Descriptive title of the Invention
 - Cross Reference to Related Applications
 - Statement Regarding Fed sponsored R&D
 - Reference to Microfiche Appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description of the Invention (including drawings, if filed)
 - Claim(s)
 - Abstract of the Disclosure

- ☒ Drawing(s) (35 USC 113) [Total Sheets 1]
- ☒ Oath or Declaration (unexecuted) [Total Sheets 2]

- ☐ Newly executed (original or copy)
- ☐ Copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 17 completed)
[Note Box 5 below]
 - ☐ DELETION OF INVENTORS(S)
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33 (b).
- ☐ Incorporation By Reference (useable if Box 4b is checked)
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

- ☐ Microfiche Computer Program (Appendix)
- ☒ Nucleotide and/or Amino Acid Sequence Submission
(if applicable, all necessary)
 - ☐ Computer Readable Copy
 - ☒ Paper Copy (219 pages)
 - ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

- ☐ Assignment Papers (cover sheet & document(s))
- ☐ 37 CFR 3.73(b) Statement ☐ Power of Attorney
(when there is an assignee)
- ☐ English Translation Document (if applicable)
- ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
- ☐ Preliminary Amendment
- ☒ Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
- ☐ Small Entity Statement filed in prior application, Statement(s) Status still proper and desired
- ☐ Certified Copy of Priority Document(s)
(if foreign priority is claimed)
- ☐ Other:

17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information:

☐ Continuation ☐ Divisional ☒ Continuation-in-part (CIP) of prior application No: 60/106,442 filed October 30, 1998.

18. CORRESPONDENCE ADDRESS

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ATTORNEY DOCKET NO. 8535-029-999Date: October 27, 1999

Assistant Commissioner for Patents
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Sir:

The following utility patent application is enclosed for filing:

Applicant(s): Nehls *et al.*

Executed on: Unexecuted

Title of Invention: **NOVEL HUMAN POLYNUCLEOTIDES AND THE POLYPEPTIDES ENCODED THEREBY****PATENT APPLICATION FEE VALUE**

TYPE	NO. FILED	LESS	EXTRA	EXTRA RATE	FEE
Total Claims	9	-20	0	\$18.00 each	\$ 0.00
Independent	4	-3	1	\$78.00 each	\$ 78.00
Minimum Fee					\$ 760.00
Multiple Dependency Fee If Applicable (\$260.00)					\$ 0.00
Total					\$ 838.00
50% Reduction for Independent Inventor, Nonprofit Organization or Small Business Concern (a verified statement as to the applicant's status is attached)					- \$ 419.00
Total Filing Fee					\$ 419.00

- ☒ Priority of application no. 60/106,442 filed on October 30, 1998 is claimed under 35 U.S.C. § 119.

A copy of this sheet is enclosed.

Respectfully submitted,

Laura Coruzzi

Laura A. Coruzzi
 PENNIE & EDMONDS LLP

30,742

(Reg. No.)

Enclosure

This form is not for use with continuation, divisional, re-issue, design or plant patent applications.

**NOVEL HUMAN POLYNUCLEOTIDES AND THE
POLYPEPTIDES ENCODED THEREBY**

5 This application claims priority to United States Provisional Application No. 60/106,442, filed October 30, 1998, which is also incorporated herein by reference for any purpose.

1. FIELD OF THE INVENTION

10 The present invention is in the field of molecular genetics. The application discloses novel nucleic acid sequences that partially define the scope of human exons that can be trapped and identified by the disclosed vectors/methods, and which are useful, *inter alia*, for identifying the organization of the coding regions and of the human genome.

2. BACKGROUND OF THE INVENTION

15 The Human Genome Project and privately financed ventures are currently sequencing the human genome, and the substantial completion of this milestone is expected before the year 2003. The hope is that, at the conclusion of the sequencing phase, a comprehensive representation of the human genome will be available for biomedical analysis. However, the data resulting from such efforts will largely comprise human genomic sequence of which only a fraction actually encodes expressed sequence information. Although sophisticated computer-assisted exon identification programs can be applied to such genomic sequence data, the computer predictions require verification by laboratory analysis to actually identify the coding regions of the genome. Consequently, the availability of cDNA information will significantly contribute to the value of the human genomic sequence since cDNA sequence provides a direct indication of the presence of transcribed sequences as well as the location of splice junctions. Thus, the sequencing of cDNA libraries to obtain expressed sequence tags (or ESTs) that identify exons expressed within a given tissue, cell, or cell line is currently in progress. As a consequence of these efforts, a large number of EST sequences are presently compiled in public and privately held databases. However, the present EST paradigm is inherently limited by the levels and extent of mRNA production within a given cell. A related problem is the lack of cDNA sources from specific tissue and developmental

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expression profiles. In addition, some genes are typically only active under certain physiological conditions or are generally expressed at levels below or near the threshold necessary for cDNA cloning and detection and are therefore not effectively represented in current cDNA libraries.

5 Researchers have partially addressed these issues by using phage vectors to clone genomic sequences such that internal exons are trapped (Nehls, *et al.*, 1994, Current Biology, 4(1):983-989, and Nehls, *et al.*, 1994, Oncogene, 9:2169-2175). However, such libraries require the random cloning of genomic DNA into a suitable cloning vector *in vitro*, followed by reintroduction of the cloned DNA *in vivo* in order to express and splice the cloned genes
10 prior to producing the cDNA library. Additionally, such methods can only "trap" the internal exons of genes. Consequently, genes containing a single exon or a single intron are typically not trapped by traditional methods of exon trapping.

3. SUMMARY OF THE INVENTION

15 The subject invention provides numerous isolated and purified novel human cDNAs produced using gene trap technology. The novel human gene trapped sequences (GTSs) of the subject invention are disclosed as SEQ ID NOS:9-1008 in the appended Sequence Listing.

20 The subject invention further contemplates the use of one or more of the subject GTSs, or portions thereof, to isolate cDNAs, genomic clones, or full-length genes/polynucleotides, or homologs, heterologs, paralogs, or orthologs thereof, that are capable of hybridizing to one or more of the disclosed GTSs or their complementary sequences under stringent conditions.

25 The subject invention additionally contemplates methods of analyzing biopolymer (*e.g.*, oligonucleotides, polynucleotides, oligopeptides, peptides, polypeptides, proteins, etc.) sequence information comprising the steps of loading a first biopolymer sequence into or onto an electronic data storage medium (*e.g.*, digital or analogue versions of electronic, magnetic, or optical memory, and the like) and comparing said first sequence to at least a portion of one of the polynucleotide sequences, or amino acid sequence encoded thereby, that
30 is first disclosed in, or otherwise unique to, SEQ ID NOS:9-1008. Typically, the

polynucleotide sequences, or amino acid sequences encoded thereby, will also be present on, or loaded into or onto a form of electronic data storage medium, or transferred therefrom, concurrent with or prior to comparison with the first polynucleotide.

Another embodiment of the invention is the use of an oligonucleotide or polynucleotide sequence first disclosed in at least a portion of at least one of the GTS sequences of SEQ ID NOS:9-1008 as a hybridization probe. Of particular interest is the use of such sequences in conjunction with a solid support matrix/substrate (resins, beads, membranes, plastics, polymers, metal or metallized substrates, crystalline or polycrystalline substrates, etc.). Of particular note are spatially addressable arrays (*i.e.*, gene chips, microtiter plates, etc.) of polynucleotides wherein at least one of the polynucleotides on the spatially addressable array comprises an oligonucleotide or polynucleotide sequence first disclosed in at least one of the GTS sequences of SEQ ID NOS:9-1008.

Similarly, one or more oligonucleotide probes based on, or otherwise incorporating, sequences first disclosed in any one of SEQ ID NOS:9-1008, can be used in methods of obtaining novel gene sequence via the polymerase chain reaction or by cycle sequencing. Similar oligonucleotide hybridization probes can also comprise sequence that is complementary to a portion of a sequence that is first disclosed in, or preferably unique to, at least one of the GTS polynucleotides in the sequence listing. The oligonucleotide probes will generally comprise between about 8 nucleotides and about 80 nucleotides, preferably between about 15 and about 40 nucleotides, and more preferably between about 20 and about 35 nucleotides.

Moreover, an oligonucleotide or polynucleotide sequence first disclosed in at least one of the GTS sequences of SEQ ID NOS:9-1008 can be incorporated into a phage display system that can be used to screen for proteins, or other ligands, that are capable of binding an amino acid sequence encoded by an oligonucleotide or polynucleotide sequence first disclosed in at least one of the GTS sequences of SEQ ID NOS:9-1008.

An additional embodiment of the present invention is a library comprising individually isolated linear DNA molecules corresponding to at least a portion of the described human GTSs which are useful for synthesizing physically contiguous sequences of overlapping GTSs by, for example, the polymerase chain reaction (PCR).

The subject invention also provides for an antisense molecule which comprises at least a portion of sequence that is first disclosed in, or preferably unique to, at least one of the GTS polynucleotides.

The subject invention also contemplates a purified polypeptide in which at least a portion of the polypeptide is encoded by, and thus first disclosed by, at least a portion of a GTS of the present invention. The invention also relates to naturally occurring polynucleotides comprising the disclosed GTSs that are expressed by promoter elements other than the promoter elements that normally express the GTSs in human cells (*i.e.*, gene activated GTSs). Such promoter elements can be directly incorporated into the cellular genome or recombinantly engineered upstream from at least a portion of a GTS (preferably at least about 50, more preferably at least about 75, and most preferably at least about 100 to 130 base in length) of the present invention, or a complement thereof. A particularly preferred embodiment includes recombinantly engineered expression vectors that similarly have or incorporate at least a, preferably unique, portion of the disclosed GTSs or complement thereof.

4. DESCRIPTION OF THE SEQUENCE LISTING AND FIGURES

The Sequence Listing is a compilation of nucleotide sequences obtained by sequencing a human gene trap library that at least partially identifies the genes in the target cell genome that can be trapped by the described gene trap vectors (*i.e.*, the repertoire of genes that are active or have not been inactivated).

Figures 1A-1D. Figure 1A illustrates a retroviral vector that can be used to practice the described invention. Figure 1B shows a schematic of how a typical cellular genomic locus is effected by the integration of the retroviral construct into intronic sequences of the cellular gene. Figure 1C shows the chimeric transcripts produced by the gene trap event as well as the locations of the binding sites for PCR primers. Figure 1D shows how the PCR amplified cDNAs are directionally cloned into a suitable GTS vector.

5. DETAILED DESCRIPTION OF THE INVENTION

The present invention is directed to novel human polynucleotide sequences obtained from cDNA libraries generated by the normalized expression of genomic exons using gene trap technology. In particular, the disclosed novel polynucleotides were generated using a modified reverse-orientation retroviral gene trap vector that was nonspecifically integrated into the target cell genome, although other polynucleotide (DNA or RNA) gene trap vectors could have been introduced to the target cells by, for example, transfection, electroporation, or retrotransposition. Preferred retroviral vectors that can be used to practice the present invention (as well as methods and recombinant tools for making and using the described GTSSs) are disclosed in, *inter alia*, U.S. Application Ser. No. 09/276,533, filed March 25, 1999 which is herein incorporated by reference in its entirety.

After integration, the exogenous promoter of the sequence acquisition, or 3' gene trap, component of the vector was used to express and splice a chimeric mRNA that was subsequently reverse transcribed, amplified, and subject to DNA sequence analysis. Unlike conventional cDNA libraries, the presently disclosed libraries are largely unaffected by the bias inherent in cDNA libraries that rely solely on endogenous mRNA expression. Additionally, by integrating a vector into the target cell genes, a chimeric mRNA is produced that allows for the specific expansion and isolation of cDNAs corresponding to the chimeric mRNAs using vector specific primers.

As used herein the term "gene trapped sequence", or "GTS", refers to nucleotide sequences that correspond to naturally occurring endogenously encoded human exons that have been expressed as part of a chimeric "gene trapped" mRNA. Typically, the chimeric mRNA incorporates at least a portion of sequence that has been engineered into the sequence acquisition exon of a gene trap vector which, *inter alia*, facilitates cDNA production by reverse transcriptase and amplification of the cDNA by PCR to produce an isolated linear DNA molecule. The disclosed GTSSs do not include vector encoded sequences.

The term "GTS" not only refers to polynucleotides that are exactly complementary to naturally occurring human mRNA, but also refers to "GTS derivatives". The term "GTS derivative" also refers to heterologs, paralogs, orthologs, and allelic variants of the specific

GTSs described herein. In addition, a GTS may include the complete coding region for a naturally occurring peptide or polypeptide. A GTS may also include a complete open reading frame.

The term "GTS peptide" as used herein includes oligopeptides or polypeptides sharing biological activity and/or immunogenicity (or immunological cross-reactivity) with an amino acid sequence encoded by at least one of the disclosed GTSs or complement thereof. The terms "biological activity" (or "biological characteristics") of a polypeptide refers to the structural or biochemical function of the polypeptide in the normal biological processes of the organism in which the polypeptide naturally occurs. Examples of such characteristics include protein structure and/or conformation, which can be determined biochemically by reaction with appropriate ligands or receptors or by suitable biological assays.

A GTS peptide may also correspond to a full-length naturally occurring peptide or polypeptide. GTS peptides can have amino acid sequences that directly correspond to naturally occurring polypeptides or amino acid sequences or can comprise minor variations.

Such variations can include amino acid substitutions that are the result of the replacement of one amino acid with another amino acid having a similar structural and/or chemical properties, such as the substitution of a leucine with an isoleucine or valine, an aspartate with a glutamate, or a threonine with a serine, *i.e.*, conservative amino acid replacements.

Additional variations include minor amino acid deletions and/or insertions, typically in the range of about 1 to 6 amino acids, and can also include one or more amino acid substitutions. Guidance in determining which GTS peptide amino acid residues can be replaced or deleted without abolishing the biological activity of interest may be determined empirically, or by using computer amino acid sequence databases to identify polypeptides that are homologous to a given GTS peptide and trying to avoid amino acid substitutions in conserved regions of homology.

"Homology" refers to the similarity or the degree of similarity between a reference, or known polynucleotide and/or polypeptide and a test nucleotide sequence and/or its corresponding amino acid sequence. As used herein, "homology" is defined by sequence similarity between a reference sequence and at least a portion of the newly sequenced

nucleotide. Typically, a corresponding amino acid sequence similarity should exist between the peptides encoded by such homologous sequences.

To determine whether proteins are homologous, the GTS sequence is translated into the corresponding amino acid sequence. The amino acid sequence is then compared with reference polypeptide sequences. A short string of matching amino acid sequence can constitute good evidence of homology (for example, repeating Gly-Pro-X sequence, or the presence of an RGD motif). However, typically a larger number of similar amino acids is required to label two sequences homologous. Generally, the match needs to be at least about 7 or 8 amino acids, among which perhaps one mismatch is allowed. These criteria allow good sensitivity in finding all relevant sequences while providing a threshold amount of selectivity.

After peptide homology has been found, the respective nucleotide sequences are compared. An alignment of the reference and new sequences should show at least about 60%, and preferably at least about 65%, agreement over the minimum of 21 nucleotides which correspond to the 6 matching amino acids. Generally, a low percentage of agreement is acceptable if the differences are in the "wobble" position (or third nucleotide of the triplet coding for an amino acid).

As used herein, a "mutated" polypeptide has an altered primary structure typically resulting from corresponding mutations in the nucleotide sequence encoding the protein or polypeptide. As such, the term "mutated" polypeptides can include allelic variants. Mutational changes in the primary structure of a polypeptide result from deletions, additions or substitutions. A "deletion" is defined as a change in a polypeptide sequence in which one or more internal amino acid residues are absent. An "addition" is defined as a change in a polypeptide sequence which has resulted in one or more additional internal amino acid residues as compared to the wild type. A "substitution" results from the replacement of one or more amino acid residues by other residues. A polypeptide "fragment" is a polypeptide consisting of a primary amino acid sequence which is identical to a portion of the primary sequence of the polypeptide to which the polypeptide is related.

A host cell "expresses" a gene or DNA when the gene or DNA is transcribed into RNA that may optionally be translated to produce a polypeptide.

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The subject invention also includes GTSs which are incorporated into expression vectors and transformed into host cells which subsequently express the polynucleotides and/or polypeptides encoded by the GTSs.

The subject invention also includes antibodies capable of specifically binding to GTS peptides, as well as methods of detecting a GTS peptides or the corresponding protein by combining a sample for analysis with an antibody capable of specifically binding to a GTS peptide and detecting the formation of antibody complexes present in the sample.

The subject invention also includes a method of isolating a GTS peptide, or its corresponding protein comprising the step of separating the GTS peptide, or its corresponding protein, from a solution utilizing an antibody capable of specifically binding to the GTS peptide or its corresponding protein.

The subject invention also provides for markers for use in detecting diseases, biological events, cell types and tissues which comprise at least a portion of a GTS sequence.

Further, the subject invention provides polynucleotide markers useful for physical and genetic mapping of the human, and/or certain model organism, genome(s). In particular, the nucleotide sequences in the Sequence Listing provide sequence tagged sites (STS), that will be useful in completing an STS-based physical map of the human genome, a goal of the human genome project (Collins, F. and Galas, D. (1993) Science 262:43-46). Additionally, some of these sequences will identify new genes. These new genes will be useful in completing physical and genetic maps of all the genes in the human genome, another goal of the human genome project.

The exons contained in the disclosed GTSs contain open reading frames (present in one of the three reading frames in either orientation of the sequence). Typically, the gene trap strategy employed to generate the GTS sequences allows for the directional cloning and identification of the sense strand. However, it is possible that occasional sequencing errors or random reverse transcription, or PCR aberrations will mask the presence of the appropriate open reading frame. In such cases of sequencing error, it is possible to determine the corresponding GTS sequence by expressing the GTS in an appropriate expression system and determining the amino acid sequence by standard peptide mapping and sequencing techniques (Current Protocols in Molecular Biology, John Wiley & Sons, Vol. 2, Sec 16,

1989). Additionally, the actual reading frame and amino acid sequence of a given nucleotide sequence may be determined by *in vitro* synthesis of a portion of an oligopeptide comprising a possible amino acid sequence and preparing antibodies to the oligopeptide. If the antibodies react with cells from which the GTS of interest was derived, the reading frame is likely correct. Alternatively, codon usage analysis can be used to track and correct reading frame shifts in gene sequence data.

The correct amino acid sequence of a GTS protein is largely a function of the DNA sequence and the correct amino acid sequence can be readily determined using routine techniques. For example, by providing independent three fold sequencing coverage of the GTS library, random sequencing/RT/PCR errors can be identified and corrected by selecting the sequence represented by the majority of gene trap sequences covering a given nucleotide.

The nucleotide sequences of the Sequence Listing may contain some sequencing errors and several of the nucleotide sequences of the Sequence Listing may contain nucleotides that have not been precisely identified, typically designated by an N, rather than A, T, C, or G. Since each of the nucleotide sequences presented in the Sequence Listing is believed to uniquely identify a novel GTS, any sequencing errors or N's in the nucleotide sequences of the Sequence Listing do not present a problem in practicing the subject invention. Several methods employing standard recombinant methodology, for example, as described in Molecular Cloning: Laboratory Manual 2nd ed., Sambrook *et al.* (1989), Cold Spring Harbor Laboratory, Cold Spring Harbor, NY (or periodic updates thereof), may be used to correct errors and complete the missing sequence information. For example, a nucleotide and/or oligonucleotide corresponding to a portion of a nucleotide sequence of GTS of interest, can be chemically or biochemically synthesized *in vitro*, and used as a hybridization probe to screen a cDNA library in order to identify and obtain library isolates comprising recombinant DNA sequences containing the GTS cDNA sequence of interest. The library isolate may then be independently subjected to nucleotide sequencing using one or more standard sequencing procedures so as to obtain a complete and accurate nucleotide sequence.

For the purposes of this disclosure, the term "isolated and purified polynucleotide" comprises a polynucleotide purified from a natural cell or tissue as well as polynucleotides

which are complementary to the polynucleotides isolated from the natural cell or tissue. One example of an isolated or purified polynucleotide, or a substantially isolated preparation thereof, is a preparation where the polynucleotide of interest represents at least about 80 percent, preferably at least about 85 percent, and more preferably at least about 90 to 95 percent or more of the net product(s) that can be visualized on a DNA agarose gel stained with ethidium bromide.

The described GTSSs were obtained from isolates of a cDNA library. Clones isolated from cDNA libraries generated by 3' gene trapping typically contain only a portion of the mature RNA transcript that has been spliced to a vector encoded sequence acquisition exon, and therefore such clones may only encode a portion of the polypeptide of interest (however, it should be appreciated that a number of the disclosed GTSSs may encode full-length ORFs). To obtain the remainder of the sequence, the GTSSs can be used as hybridization probes to re-screen the same or a different cDNA library, and additional clones isolated by the re-screening can be purified and characterized using standard methods (Benton and Davis, 1977, Science, 196:180-183). Once sufficiently purified, the size of the DNA insert can be approximated by agarose gel electrophoresis and the larger clones can be analyzed to determine the exact number of bases by DNA sequencing. Frequently, the use of a library different from the one which contained the original clone is useful for this purpose, and particularly a library that has been prepared with extra care to extend cDNA synthesis to full-length, or a library that has been intentionally primed with random primers in order to "jump over" particularly difficult regions of the transcript sequence.

Missing upstream DNA sequence can also be obtained by "primer extension" of the cDNA isolate, a practice common in the art (Sambrook *et al.* (1989), Molecular Cloning: Laboratory Manual 2nd ed. pg 7.79-7.83, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY), whereby a sequence-specific oligonucleotide is used to prime reverse-transcription near the 5'-end of the cDNA clone and the resulting product is either cloned into a bacterial vector or is analyzed directly by DNA sequencing. Finally, newer methods to extend clones in either direction employ oligonucleotide-directed thermocyclic DNA amplification of the missing sequences, wherein a combination of a cDNA-specific primer and a degenerate, vector-specific, or oligo-dT-binding second oligonucleotide can be used to

prime strand synthesis. In any of the above methods or other methods of detecting additional cDNA sequence, two or more resulting clones containing the partial cDNA sequence can be recombined to form a single full-length cDNA by standard cloning methods. The resulting full-length cDNA may subsequently be transferred into any of a number of appropriate expression vectors.

In many instances, the sequencing of clones resulting from independent nonspecific gene trap events will result in a natural redundancy of sequencing more than one cDNA from a particular gene. As discussed above, this feature is a built in form of error detection and correction. These independent gene trap events can also be combined using the various overlapping regions of sequence into an entire contiguous sequence ("contig") containing the complete nucleotide sequence of the full length cDNA. Similar methodology can be used to combine one or more GTSs with one or more publicly available, or proprietary, ESTs to synthesize, electronically or chemically, a contiguous sequence.

The ABI Assembler application, part of the INHERITS DNA analysis system (Applied Biosystems, Inc., Foster City, CA), creates and manages sequence assembly projects by assembling data from selected sequence fragments into a larger sequence. The Assembler combines two advanced computer technologies which maximize the ability to assemble sequenced DNA fragments into Assemblages, a special grouping of data where the relationships between sequences are shown by graphic overlap, alignment and statistical views. The process is based on the Meyers-Kececiloglu model of fragment assembly (INHERITS™ Assembler User's Manual, Applied Biosystems, Inc., Foster City, CA), and uses graph theory as the foundation of a very rigorous multiple sequence alignment program for assembling DNA sequence fragments. Additional methods of using GTSs and obtaining full length versions thereof are discussed in U.S. Patent No. 5,817,479, herein incorporated by reference.

It will be appreciated by those skilled in the art that as a result of the degeneracy of the genetic code (see, for example, Table 4-1 at page 109 of "Molecular Cell Biology", 1986, J. Darnell *et al.* eds., Scientific American Books, New York, NY, herein incorporated by reference) a multitude of GTS nucleotide sequences, some bearing minimal nucleotide sequence homology to the nucleotide sequence of genes naturally encoding GTS peptides,

can be produced. The invention has specifically contemplated each and every possible variation of nucleotide sequence that could be made by selecting combinations based on possible codon choices. These combinations are made in accordance with the standard triplet genetic code as applied to the nucleotide sequence of naturally occurring human GTS

5 nucleotide sequences and all such variations are to be considered as being specifically disclosed. Once the triplet codons are "translated" (which can be done electronically) into their amino acid counterparts, the amino acid sequences encoded by the GTS ORFs effectively represent a generic representation of the various nucleotide sequences that can encode the amino acid sequence (*i.e.*, each amino acid is generic for the various nucleotide
10 codons that correspond to that amino acid).

The presently described novel human GTSs provide unique tools for diagnostic gene expression analysis, for cross species hybridization analysis, for genetic manipulations using a variety of techniques, like, for example, antisense inhibition, gene targeting, the identification or generation of full-length cDNA, mapping exons in the human genome,
15 identifying exon splice junctions, gene therapy, gene delivery, chromosome mapping, etc. Furthermore, the expression-based detection and isolation of the described novel polynucleotides verifies that the genes encoding these sequences have not been inactivated by, for example, the covalent modification (methylation, acetylation, glycosylation, etc.) of the target cell genome, or inhibiting the function of transcriptional control elements. The fact
20 that the genes have not been inactivated in the target cell genome can indicate an involvement in cellular metabolism, catabolism, homeostasis, or any of a wide variety of developmental and cell differentiation processes or the regulation of physiological or endocrine functions in the body, etc. (although treating the target cell with, for example, histone deacetylators can partially compensate for such inactivation and expand the target size of a given trapping
25 construct). These data are especially useful when correlated with cDNA data from differentiated tissues and/or cells or cell lines in order to determine whether the absence of expression is regulated at the level of transcription or gene inactivation.

5.1 POLYNUCLEOTIDES OF THE PRESENT INVENTION

The nucleotide sequences of the various isolated human GTSs of the present invention appear in the Sequence Listing as SEQ ID NOS:9-1008. Additional embodiments of the present invention are GTS variants, or homologs, paralogs, orthologs, etc., which include

5 isolated polynucleotides, or complements thereof, that hybridize to one or more of the disclosed GTSs of SEQ ID NOS:9-1008 under stringent, or preferably highly stringent, conditions. By way of example and not limitation, high stringency hybridization conditions can be defined as follows: Prehybridization of filters containing DNA to be screened is carried out for 8 h to overnight at 65°C in a buffer containing 6X SSC, 50mM Tris-HCl (pH 10 7.5), 1mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.02% BSA, and 500 µg/ml denatured salmon sperm DNA. Filters are hybridized for 48 h at 65°C in prehybridization mixture containing 100µg/ml denatured salmon sperm DNA and 5-20 x 10⁶ cpm of ³²P-labeled probe (alternatively, as in all hybridizations described herein, approximately 42, 44, 46, 48, 50, 52, 54, 56, 58, 62, 64, 66, 68, 70, or about 72 degrees or more can be used). The filters are then 15 washed in approximately 1X wash mix (10X wash mix contains 3M NaCl, 0.6M Tris base, and 0.02M EDTA, alternatively, as with all washes described herein, 2X, 3X, 4X, 5X, 6X wash mix, or more, can be used) twice for 5 minutes each at room temperature, then in 1X wash mix containing 1% SDS at 60°C (alternatively, as in all washes described herein, approximately 42, 44, 46, 48, 50, 52, 54, 56, 58, 62, 64, 66, 68, 70, or about 72 degrees or 20 more can be used) for about 30 min, and finally in 0.3X wash mix (alternatively, as in all final washes described herein, approximately, 0.2X, 0.4X, 0.6X, 0.8X, 1X, or any concentration between about 2X and about 6X can be used in conjunction with a suitable wash temperature) containing 0.1% SDS at 60°C (alternatively, approximately 42, 44, 46, 48, 50, 52, 54, 56, 58, 62, 64, 66, 68, 70, or about 72 degrees or more can be used) for about 30 25 min. The filters are then air dried and exposed to x-ray film for autoradiography. In an alternative protocol, washing of filters is done for 37°C for 1 h in a solution containing 2X SSC,

0.01% PVP, 0.01% Ficoll, and 0.01% BSA. This is followed by a wash in 0.1X SSC at 50°C for 45 min before autoradiography. Another example of hybridization under highly stringent 30 conditions is hybridization to filter-bound DNA in 0.5 M NaHPO₄, 7% sodium dodecyl

sulfate (SDS), 1 mM EDTA at 65°C, and washing in 0.1xSSC/0.1% SDS at 68°C (Ausubel F.M. *et al.*, eds., 1989, Current Protocols in Molecular Biology, Vol. I, Green Publishing Associates, Inc., and John Wiley & sons, Inc., New York, at p. 2.10.3).

Preferably, such GTS variants will encode at least a portion or domain of a, preferably naturally occurring, protein or polypeptide that encodes a functional equivalent to a protein or polypeptide, or portion or domain thereof, encoded by the disclosed GTSs. Additional examples of GTS variants include polynucleotides, or complements thereof, that are capable of binding to the disclosed GTSs under less stringent conditions, such as moderately stringent conditions, (*e.g.*, washing in 0.2xSSC/0.1% SDS at 42° C (Ausubel *et al.*, 1989, *supra*).

Moderately stringent conditions can be additionally defined, for example, as follows: Filters containing DNA are pretreated for 6 h at 55°C in a solution containing 6X SSC, 5X Denhart's solution, 0.5% SDS and 100 µg/ml denatured salmon sperm DNA. Hybridizations are carried out in the same solution and 5-20 x 10⁶ cpm ³²P-labeled probe is used. Filters are incubated in hybridization mixture for 18-20 h at 55°C (alternatively, as in all hybridizations described herein, approximately 42, 44, 46, 48, 50, 52, 54, 56, 58, 62, 64, 66, 68, 70, or about 72 degrees or more can be used in combination with a suitable concentration of salt). The filters are then washed in approximately 1X wash mix (10X wash mix contains 3M NaCl, 0.6M Tris base, and 0.02M EDTA, alternatively, as with all washes described herein, 2X, 3X, 4X, 5X, 6X wash mix, or more, can be used) twice for 5 minutes each at room temperature, then in 1X wash mix containing 1% SDS at 60°C (alternatively, as in all washes described herein, approximately, 42, 44, 46, 48, 50, 52, 54, 56, 58, 62, 64, 66, 68, 70, or about 72 degrees or more can be used) for about 30 min, and finally in 0.3X wash mix (alternatively, as in all final washes described herein approximately 0.2X, 0.4X, 0.6X, 0.8X, 1X, or any concentration between about 2X and about 6X can be used in conjunction with a suitable wash temperature) containing 0.1% SDS at 60°C (alternatively, approximately 42, 44, 45, 48, 50, 52, 54, 56, 58, 62, 64, 66, 68, 70, or about 72 degrees or more can be used) for about 30 min. The filters are then air dried and exposed to x-ray film for autoradiography.

In an alternative protocol, washing of filters is done twice for 30 minutes at 60°C in a solution containing 1X SSC and 0.1% SDS. Filters are blotted dry and exposed for autoradiography.

Other conditions of moderate stringency which may be used are well-known in the art. For example, washing of filters can be done at 37°C for 1 h in a solution containing 2X SSC, 0.1% SDS. Another example of hybridization under moderately stringent conditions is washing in 0.2xSSC/0.1% SDS at 42°C (Ausubel et al., 1989, *supra*). Such less stringent

5 conditions may also be, for example, low stringency hybridization conditions. By way of example and not limitation, procedures using such conditions of low stringency are as follows (see also Shilo and Weinberg, 1981, Proc. Natl. Acad. Sci. USA 78:6789-6792): Filters

containing DNA are pretreated for 6 h at 40°C in a solution containing 35% formamide, 5X SSC, 50mM Tris-HCl (pH 7.5), 5mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500

10 µg/ml denatured salmon sperm DNA. Hybridizations are carried out in the same solution with the following modifications: 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100µg/ml salmon sperm DNA, 10% (wt/vol) dextran sulfate, and 5-20 X 10⁶ cpm ³²P-labeled probe is used. Filters are incubated in hybridization mixture for 18-20 h at 40°C (alternatively, as in all

hybridizations described herein, approximately 42, 44, 46, 48, 50, 52, 54, 56, 58, 62, 64, 66,

15 68, 70, or about 72 degrees or more can be used). The filters are then washed in approximately 1X wash mix (10x wash mix contains 3M NaCl, 0.6M Tris base, and 0.02M EDTA, alternatively, as with all washes described herein, 2X, 3X, 4X, 5X, 6X wash mix, or more, can be used) twice for five minutes each at room temperature, then in 1X wash mix containing 1% SDS at 60°C (alternatively, as in all washes described herein, approximately

20 42, 44, 46, 48, 50, 52, 54, 56, 58, 62, 64, 66, 68, 70, or about 72 degrees or more can be used) for about 30 min, and finally in 0.3X wash mix (alternatively, as in all final washes described herein, approximately, 0.2X, 0.4X, 0.6X, 0.8X, 1X, or any concentration between about 2X and about 6X can be used in conjunction with a suitable wash temperature) containing 0.1% SDS at 60°C (alternatively, approximately 42, 44, 46, 48, 50, 52, 54, 56, 58, 62, 64, 66, 68,

25 70, or about 72 degrees or more can be used) for about 30 min. The filters are then air dried and exposed to x-ray film for autoradiography. In yet another alternative protocol, washing of filters is done for 1.5 h at 55°C in a solution containing 2X SSC, 25mM Tris-HCl (pH 7.4), 5mM EDTA, and 0.1% SDS. The wash solution is replaced with fresh solution and incubated an additional 1.5 h at 60°C. Filters are then blotted dry and exposed for

30 autoradiography. If necessary, filters are washed for a third time at 65-68°C and reexposed to

film. Other conditions of low stringency which may be used are well known in the art (*e.g.*, as employed for cross-species hybridizations). Preferably, GTS variants identified or isolated using the above methods will also encode a functionally equivalent gene product (*i.e.*, protein, polypeptide, or domain thereof, encoding or otherwise associated with a function or structure at least partially encoded by the complementary GTS).

Additional embodiments contemplated by the present invention include any polynucleotide sequence comprising a continuous stretch of nucleotide sequence originally disclosed in, or otherwise unique to, any of the GTSs of SEQ ID NOS:9-1008 that are at least 8, or at least 10, or at least 14, or at least 20, or at least 30, or at least about 40, and preferably at least about 60 consecutive nucleotides up to about several hundred bases of nucleotide sequence or an entire GTS sequence. Functional equivalents of the gene products of SEQ ID NOS:9-1008 include naturally occurring variants of SEQ ID NOS:9-1008 present in other species, and mutant variants, both naturally occurring and engineered, which retain at least some of the functional activities of the gene products of SEQ ID NOS:9-1008.

The invention also includes degenerate variants of the claimed GTS sequences, and products encoded thereby. Such variants may be 80% identical to any one of SEQ ID NOS: 9-1008, more preferably 85%, more preferably 90%, more preferably 95% and most preferably 98% identical. The degree of identity (or the degree of homology) of a polynucleotide sequence to any one of SEQ ID NOS: 9-1008 may be determined using any sequence analysis program known in the art, for example, the University of Wisconsin GCG sequence analysis package, SEQUENCHER 3.0, Gene Codes Corp., Ann Arbor, MI. The invention further includes GTS derivatives wherein any of the disclosed GTSs, or GTS variants, is linked to another polynucleotide molecule, or a fragment thereof, wherein the link may be either directly or through other polynucleotides of any sequence and of a length of about 1,000 base pairs, or about 500 base pairs, or about 300 base pairs, or about 200 base pairs, or about 150 base pairs, or about 100 base pairs or about 50 base pairs, or less.

The invention also particularly includes polynucleotide molecules, including DNA, that hybridize to, and are therefore the complements of, the nucleotide sequences of the disclosed GTSs. Such hybridization conditions may be highly stringent or less highly stringent, as described above. In instances wherein the nucleic acid molecules are

deoxyoligonucleotides ("DNA oligos"), highly stringent conditions may refer to, for example, washing in 6xSSC/0.05% sodium pyrophosphate at 37° C (for oligos having 14-base DNA oligos), 48° C (for 17-base DNA oligos), 55° C (for 20-base DNA oligos), and 60°C (for 23-base oligos). Similar conditions are contemplated for RNA oligos corresponding to a portion of the disclosed GTS sequences.

These nucleic acid molecules may encode or act as antisense molecules to polynucleotides comprising at least a portion of the sequences shown in SEQ ID NOS:9-1008 that are useful, for example, to regulate the expression of genes comprising a nucleotide sequence of any of SEQ ID NOS:9-1008, and can also be used, for example, as antisense primers in amplification reactions of gene sequences. With respect to gene regulation, such techniques can be used to regulate, for example, developmental processes by modulating the expression of genes in embryonic stem cells. Further, such sequences may be used as part of ribozyme and/or triple helix sequences that can be used to regulate gene expression. Still further, such molecules may be used as components of diagnostic methods whereby, for example, the presence of a particular allele, of a gene that contains any of the sequences of SEQ ID NOS:9-1008 may be detected. Of particular interest is the use of the disclosed GTSs to conduct analysis of single nucleotide polymorphisms (SNPs), and particularly coding region SNPs or "cSNPs", in the human genome, or as general or individual-specific forensic markers. When so applied, a collection of GTSs is obtained from an individual, and screened against a control database of cSNPs (or other genetic markers) that have previously been associated with disease, suitability or susceptibility (or sensitivity) to specific drugs or therapies, or virtually any other human trait that correlates with a given cSNP or genetic marker, or assortment thereof. In addition to disease/diagnostic testing, the described GTSs are also useful as genetic markers for the prenatal analysis of congenital traits or defects.

In addition to the nucleotide sequences described above, full length cDNA or gene sequences that contain any of SEQ ID NOS:9-1008 present in the same species and/or homologs of any of those genes present in other species can be identified and isolated by using molecular biological techniques known in the art.

In order to clone the full length cDNA sequence from any species encoding the cDNA corresponding to the entire messenger RNA or to clone variant or heterologous forms of the

molecule, labeled DNA probes made from nucleic acid fragments corresponding to any of the partial cDNA disclosed herein may be used to screen a cDNA library. For example, oligonucleotides corresponding to either the 5' or 3' terminus of the cDNA sequence may be used to obtain longer nucleotide sequences. Briefly, the library may be plated out to yield a maximum of about 30,000 pfu for each 150 mm plate. Approximately 40 plates may be screened. The plates are incubated at 37° C until the plaques reach a diameter of 0.25 mm or are just beginning to make contact with one another (3-8 hours). Nylon filters are placed onto the soft top agarose and after 60 seconds, the filters are peeled off and floated on a DNA denaturing solution consisting of 0.4N sodium hydroxide. The filters are then immersed in neutralizing solution consisting of 1 M Tris HCl, pH 7.5, before being allowed to air dry. The filters are prehybridized in casein hybridization buffer containing 10% dextran sulfate, 0.5 M NaCl, 50 mM Tris HCL, pH 7.5, 0.1% sodium pyrophosphate, 1% casein, 1% SDS, and denatured salmon sperm DNA at 0.5 mg/ml for 6 hours at 60° C. The radiolabelled probe is then denatured by heating to 95° C for 2 minutes and then added to the prehybridization solution containing the filters. The filters are hybridized at 60° C (alternatively, as in all hybridizations described herein, approximately 42, 44, 46, 48, 50, 52, 54, 56, 58, 62, 64, 66, 68, 70, or about 72 degrees or more can be used) for about 16 hours. The filters are then washed in approximately 1X wash mix (10X wash mix contains 3M NaCl, 0.6M Tris base, and 0.02M EDTA, alternatively, as with all washes described herein, 2X, 3X, 4X, 5X, 6X wash mix, or more, can be used) twice for 5 minutes each at room temperature, then in 1X wash mix containing 1% SDS at 60° C (alternatively, as in all washes described herein, approximately 42, 44, 46, 48, 50, 52, 54, 56, 58, 62, 64, 66, 68, 70, or about 72 degrees or more can be used) for about 30 min, and finally in 0.3X wash mix (alternatively, as in all final washes described herein, approximately, 0.2X, 0.4X, 0.6X, 0.8X, 1X, or any concentration between about 2X and about 6X can be used in conjunction with a suitable wash temperature) containing 0.1% SDS at 60° C (alternatively, approximately 42, 44, 46, 48, 50, 52, 54, 56, 58, 62, 64, 66, 68, 70, or about 72 degrees or more can be used) for about 30 min. The filters are then air dried and exposed to x-ray film for autoradiography. After developing, the film is aligned with the filters to select a positive plaque. If a single, isolated positive plaque cannot be obtained, the agar plug containing the plaques will be

removed and placed in lambda dilution buffer containing 0.1M NaCl, 0.01M magnesium sulfate, 0.035M Tris HCl, pH 7.5, 0.01% gelatin. The phage may then be replated and rescreened to obtain single, well isolated positive plaques. Positive plaques may be isolated and the cDNA clones sequenced using primers based on the known cDNA sequence. This
5 step may be repeated until a full length cDNA is obtained.

It may be necessary to screen multiple cDNA libraries from different sources/tissues to obtain a full length cDNA. In the event that it is difficult to identify cDNA clones encoding the complete 5' terminal coding region, an often encountered situation in cDNA cloning, the RACE (Rapid Amplification of cDNA Ends) technique may be used. RACE is a
10 proven PCR-based strategy for amplifying the 5' end of incomplete cDNAs. 5'-RACE-Ready cDNA synthesized from human fetal liver containing a unique anchor sequence is commercially available (Clontech). To obtain the 5' end of the cDNA, PCR is carried out, for example, on 5'-RACE-Ready cDNA using the provided anchor primer and the 3' primer. A secondary PCR reaction is then carried out using the anchored primer and a nested 3' primer
15 according to the manufacturer's instructions.

Once obtained, the full length cDNA sequence may be translated into amino acid sequence and examined for certain landmarks found in the amino acid sequences encoded by SEQ ID NOS:9-1008, or any structural similarities to these disclosed sequences.

The identification of homologs, heterologs, or paralogs of SEQ ID NOS:9-1008 in
20 other, preferably related, species can be useful for developing additional animal model systems that are closely related to humans for purposes of drug discovery. Genes at other genetic loci within the genome that encode proteins which have extensive homology to one or more domains of the gene products encoded by SEQ ID NOS:9-1008 can also be identified via similar techniques. In the case of cDNA libraries, such screening techniques can identify
25 clones derived from alternatively spliced transcripts in the same or different species.

Screening can be done using filter hybridization with duplicate filters. The labeled probe can contain at least 15-30 base pairs of the nucleotide sequence presented in SEQ ID NOS:9-1008. The hybridization washing conditions used should be of a lower stringency when the cDNA library is derived from an organism different from, or heterologous to, the
30 type of organism from which the labeled sequence was derived. With respect to the cloning

of a mammalian homolog, heterolog, ortholog, or paralog, using probes derived from any of the sequences of SEQ ID NOS:9-1008, for example, hybridization can, for example, be performed at 65° C overnight in Church's buffer (7% SDS, 250 mM NaHPO₄, 2 mM EDTA, 1% BSA). Washes can be done with 2XSSC, 0.1% SDS at 65° C and then at 0.1XSSC, 0.1% SDS at 65° C.

Low stringency conditions are well known to those of skill in the art, and will vary predictably depending on the specific organisms from which the library and the labeled sequences are derived. For guidance regarding such conditions see, for example, Sambrook *et al.*, 1989, Molecular Cloning, A Laboratory Manual, Cold Springs Harbor Press, N.Y.; and Ausubel *et al.*, 1989, Current Protocols in Molecular Biology, Green Publishing Associates and Wiley Interscience, N.Y.

Alternatively, the labeled nucleotide probe of a sequence of any of SEQ ID NOS:9-1008 may be used to screen a genomic library derived from the organism of interest, again, using appropriately stringent conditions. The identification and characterization of human genomic clones is helpful for designing diagnostic tests and clinical protocols for treating disorders in human patients that are known or suspected to be linked to disease or other developmental or cell differentiation disorders and abnormalities. For example, sequences derived from regions adjacent to the intron/exon boundaries of the human gene can be used to design primers for use in amplification assays to detect mutations within the exons, introns, splice sites (*e.g.*, splice acceptor and/or donor sites), etc., that can be used in diagnostics.

Further, gene homologs can also be isolated from nucleic acid of the organism of interest by performing PCR using two oligonucleotide primers derived from SEQ ID NOS:9-1008 or two degenerate oligonucleotide primer pools designed on the basis of amino acid sequences within the gene products encoded by SEQ ID NOS:9-1008. The template for the reaction may be cDNA obtained by reverse transcription of mRNA prepared from, for example, human or non-human cell lines, cell types, or tissues, like, for example, ES cells from the organism of interest.

The PCR product may be subcloned or sequenced directly or subcloned and sequenced to ensure that the amplified sequences represent the sequences of the gene corresponding to the sequence of SEQ ID NOS:9-1008 of interest. The PCR fragment may

then be used to isolate a full length cDNA clone by a variety of methods. For example, the amplified fragment may be labeled and used to screen a cDNA library, such as a bacteriophage cDNA library. Alternatively, the labeled fragment may be used to isolate genomic clones via the screening of a genomic library.

5 PCR technology may also be utilized to isolate full length cDNA sequences. For example, RNA can be isolated using standard procedures from an appropriate cellular source (*i.e.*, one known, or suspected, to express the gene corresponding to the sequence of SEQ ID NOS:9-1008 of interest, such as, for example, ES cells). A reverse transcription reaction may be performed on the RNA using an oligonucleotide primer specific for the most 5' end of the
10 amplified fragment for the priming of first strand synthesis. The resulting RNA/DNA hybrid may then be "tailed" with guanines, for example, using a standard terminal transferase reaction, the hybrid may be digested with RNase H, and second strand synthesis may then be primed with a poly-C primer. Thus, cDNA sequences upstream from the amplified fragment may easily be isolated. For a review of cloning strategies which may be used, see *e.g.*,
15 Sambrook *et al.*, 1989, supra. Alternatively, cDNA or genomic libraries can be screened using 5' PCR primers that hybridize to vector sequences and 3' PCR primers specific to the gene of interest. Typically, such primers comprise oligonucleotide "priming" sequences first disclosed in, or otherwise unique to, one of the GTSSs of SEQ ID NOS:9-1008.

 The sequence of a gene corresponding to any of the sequences of SEQ ID NOS:9-
20 1008 can also be used to isolate mutant alleles of that gene. Such mutant alleles may be isolated from individuals either known or suspected to have a genotype which contributes to the disease of interest or other symptoms of developmental and cell differentiation and/or proliferation disorders and abnormalities. Mutant alleles and mutant allele products may then be utilized in the therapeutic and diagnostic programs described below. Additionally, such
25 sequences of any of the genes corresponding to SEQ ID NOS:9-1008 can be used to detect gene regulatory (*e.g.*, promoter or promoter/enhancer) defects which can affect development or cell differentiation.

 A cDNA of a mutant gene corresponding to any of the sequences of SEQ ID NOS:9-1008 can be isolated as discussed above, or, for example, by using PCR. In this case, the first
30 cDNA strand may be synthesized by hybridizing an oligo-dT oligonucleotide to mRNA

isolated from cells derived from an individual suspected of carrying a mutant gene corresponding to any of the sequences of SEQ ID NOS:9-1008 by extending the new strand with reverse transcriptase. The second strand of the cDNA is then synthesized using an oligonucleotide that hybridizes specifically to the 5' region of the normal gene. The amplified product can be directly sequenced or cloned into a suitable vector and subsequently subjected to DNA sequence analysis. By comparing the DNA sequence of the mutant allele to that of the normal allele, the mutation(s) responsible for the loss or alteration of function of the mutant gene product can be ascertained.

Alternatively, a genomic library can be constructed using DNA obtained from one or more individuals suspected of carrying, or known to carry, a mutant allele corresponding to any of SEQ ID NOS:9-1008. Corresponding mutant cDNA libraries can be also constructed using RNA from cell types known, or suspected, to express such mutant alleles. The corresponding normal gene, or any suitable fragment thereof, may then be labeled and used as a probe to identify the corresponding mutant allele in such libraries. Clones containing the mutant gene sequences may then be identified and analyzed by DNA sequence analysis. Additionally, a protein expression library can be constructed utilizing cDNA synthesized from, for example, RNA isolated from a cell type known, or suspected, to express a mutant allele corresponding to any of the sequences of SEQ ID NOS:9-1008 from an individual suspected of, carrying or known to carry, such a mutant allele. In this manner, gene products made by the putatively mutant cell type may be expressed and screened using standard antibody screening techniques in conjunction with antibodies raised against the corresponding normal gene product or a portion thereof, as described below in Section 5.4 (For screening techniques, see, for example, Harlow, E. and Lane, eds., 1988, "Antibodies: A Laboratory Manual", Cold Spring Harbor Press, Cold Spring Harbor.) Additionally, screening can be accomplished by screening with labeled fusion proteins. In cases where a mutation results in an expressed gene product with altered function (*e.g.*, as a result of a missense or a frame shift mutation), a polyclonal set of antibodies to the wild-type gene product are likely to cross-react with the mutant gene product. Library clones detected via their reaction with such labeled antibodies can be purified and subjected to sequence analysis according to methods well known to those of skill in the art.

5 The invention also encompasses nucleotide sequences that encode mutant isoforms of any of the amino acid sequences encoded by the GTSs of SEQ ID NOS:9-1008, peptide fragments thereof, truncated versions thereof, and fusion proteins including any of the above. Examples of such fusion proteins can include, but not limited to, an epitope tag which aids in purification or detection of the resulting fusion protein; or an enzyme, fluorescent protein, luminescent protein which can be used as a marker.

10 The present invention additionally encompasses (a) RNA or DNA vectors that contain any portion of SEQ ID NOS:9-1008 and/or their complements as well as any of the peptides or proteins encoded thereby; (b) DNA vectors that contain a cDNA that substantially spans the entire open reading frame corresponding to any of the sequences of SEQ ID NOS:9-1008 and/or their complements; (c) DNA expression vectors that have or contain any of the foregoing sequences, or a portion thereof, operatively associated with a (d) genetically engineered host cells that contain a cDNA that spans the entire open reading frame, or any portion thereof, corresponding to any of the sequences of SEQ ID NOS:9-1008 operatively
15 associated with a regulatory element, generally recombinantly positioned either *in vivo* (such as in gene activation) or *in vitro* that directs the expression of the coding sequences in the host cell. As used herein, regulatory elements include, but are not limited to, inducible and non-inducible promoters, enhancers, operators and other elements known to those skilled in the art that drive and regulate expression. Such regulatory elements include, but are not
20 limited to, the baculovirus promoter, cytomegalovirus hCMV immediate early gene promoter, the early or late promoters of SV40 adenovirus, the *lac* system, the *trp* system, the *TAC* system, the *TRC* system, the major operator and promoter regions of phage A, the control regions of fd coat protein, acid phosphatase promoters, phosphoglycerate kinase (PGK) and especially 3-phosphoglycerate kinase promoters, and yeast alpha mating factors.

25 An additional application of the described novel human polynucleotide sequences is their use in the molecular mutagenesis/evolution of proteins that are at least partially encoded by the described novel sequences using, for example, polynucleotide shuffling or related methodologies. Such approaches are described in U.S. Patents Nos. 5,830,721 and 5,837,458 which are herein incorporated by reference in their entirety.

5.2 PROTEINS AND POLYPEPTIDES ENCODED BY POLYNUCLEOTIDES EXPRESSED IN MODIFIED HUMAN CELLS

Peptides and proteins encoded by the open reading frame of mRNAs corresponding to
5 SEQ ID NOS:9-1008, polypeptides and peptide fragments, mutated, truncated or deleted
forms of those peptides and proteins, fusion proteins containing any of those peptides and
proteins can be prepared for a variety of uses, including, but not limited to, the generation of
antibodies, as reagents in diagnostic assays, the identification of other cellular gene products
involved in the regulation of development and cellular differentiation of various cell types,
10 like, for example, ES cells, as reagents in assays for screening for compounds that can be
used in the treatment of disorders affecting development and cell differentiation, and as
pharmaceutical reagents useful in the treatment of disorders affecting development and cell
differentiation.

The invention also encompasses proteins, peptides, and polypeptides that are
15 functionally equivalent to those encoded by SEQ ID NOS:9-1008. Such functionally
equivalent products include, but are not limited to, additions or substitutions of amino acid
residues within the amino acid sequence encoded by the nucleotide sequences described
above, but which result in a silent change, thus producing a functionally equivalent gene
product. Amino acid substitutions can be made on the basis of similarity in polarity, charge,
20 solubility, hydrophobicity, hydrophilicity, and/or the amphipathic nature of the residues
involved. For example, nonpolar (hydrophobic) amino acids include alanine, leucine,
isoleucine, valine, proline, phenylalanine, tryptophan, and methionine; polar neutral amino
acids include glycine, serine, threonine, cysteine, tyrosine, asparagine, and glutamine;
positively charged (basic) amino acids include arginine, lysine, and histidine; and negatively
25 charged (acidic) amino acids include aspartic acid and glutamic acid.

While random mutations can be introduced into DNA encoding peptides and proteins
of the current invention (using random mutagenesis techniques well known to those skilled in
the art), and the resulting mutant peptides and proteins tested for activity, site-directed
mutations of the coding sequence can be engineered (using standard site-directed mutagenesis
30 techniques) to generate mutant peptides and proteins of the current invention having
increased functionality.

For example, the amino acid sequence of peptides and proteins of the current invention can be aligned with homologs from different species. Mutant peptides and proteins can be engineered so that regions of interspecies identity are maintained, whereas the variable residues are altered, *e.g.*, by deletion or insertion of an amino acid residue(s) or by

5 substitution of one or more different amino acid residues. Conservative alterations at the variable positions can be engineered in order to produce a mutant form of a peptide or protein of the current invention that retains function. Non-conservative changes can be engineered at these variable positions to alter function. Alternatively, where alteration of function is desired, deletion or non-conservative alterations of the conserved regions can be engineered.

10 One of skill in the art may easily test such mutant or deleted form of a peptide or protein of the current invention for these alterations in function using the teachings presented herein.

Other mutations to the coding sequences described above can be made to generate peptides and proteins that are better suited for expression, scale up, etc. in the host cells chosen. For example, the triplet code for each amino acid can be modified to conform more
15 closely to the preferential codon usage of the host cell's translational machinery, or, for example, to yield a messenger RNA molecule with a longer half-life. Those skilled in the art would readily know what modifications of the nucleotide sequence would be desirable to conform the nucleotide sequence to preferential codon usage or to make the messenger RNA more stable. Such information would be obtainable, for example, through use of computer
20 programs, through review of available research data on codon usage and messenger RNA stability, and through other means known to those of skill in the art.

Peptides corresponding to one or more domains (or a portion of a domain) of one of the proteins described above, truncated or deleted proteins, as well as fusion proteins in which the full length protein described above, a subunit peptide or truncated version is fused to an
25 unrelated protein are also within the scope of the invention and can be designed by those of skill in the art on the basis of experimental or functional considerations. Such fusion proteins include, but are not limited to, fusions to an epitope tag; or fusions to an enzyme, fluorescent protein, or luminescent protein which provide a marker function.

While the peptides and proteins of the current invention can be chemically
30 synthesized (*e.g.*, see Creighton, 1983, *Proteins: Structures and Molecular Principles*, W.H.

Freeman & Co., N.Y.), large polypeptides derived from any of the polynucleotides described above may advantageously be produced by recombinant DNA technology using techniques well known in the art for expressing genes and/or coding sequences. These methods include, for example, *in vitro* recombinant DNA techniques, synthetic techniques, and *in vivo* genetic recombination. See, for example, the techniques described in Sambrook *et al.*, 1989, *supra*, and Ausubel *et al.*, 1989, *supra*. Alternatively, RNA capable of encoding any of the nucleotide sequences described above may be chemically synthesized using, for example, synthesizers. See, for example, the techniques described in "Oligonucleotide Synthesis", 1984, Gait, M.J. ed., IRL Press, Oxford, which is incorporated by reference herein in its entirety.

A variety of host-expression vector systems may be utilized to express the nucleotide sequences of the invention. Where the peptide or protein to be synthesized is a soluble derivative, the peptide or polypeptide can be recovered from the culture, *i.e.*, from the host cell in cases where the peptide or polypeptide is not secreted, and from the culture media in cases where the peptide or polypeptide is secreted by the cells. However, such engineered host cells themselves may be used in situations where it is important not only to retain the structural and functional characteristics of the expressed peptide or protein, but to assess biological activity, *e.g.*, in drug screening assays.

The expression systems that may be used for purposes of the invention include, but are not limited to, microorganisms such as bacteria (*e.g.*, *E. coli*, *B. subtilis*) transformed with recombinant bacteriophage DNA, plasmid DNA or cosmid DNA expression vectors containing a nucleotide sequence of the current invention; yeast (*e.g.*, *Saccharomyces*, *Pichia*) transformed with recombinant yeast expression vectors containing a nucleotide sequence of the current invention; insect cell systems infected with recombinant virus expression vectors (*e.g.*, baculovirus) containing a nucleotide sequence of the current invention; plant cell systems infected with recombinant virus expression vectors (*e.g.*, cauliflower mosaic virus, CaMV; tobacco mosaic virus, TMV) or transformed with recombinant plasmid expression vectors (*e.g.*, Ti plasmid) containing a nucleotide sequence of the current invention; or mammalian cell systems (*e.g.*, COS, CHO, BHK, 293, 3T3, U937) harboring recombinant expression constructs containing promoters derived from the genome of

mammalian cells (e.g., metallothionein promoter) or from mammalian viruses (e.g., the adenovirus late promoter; the vaccinia virus 7.5K promoter).

In bacterial systems, a number of expression vectors may be advantageously selected depending upon the use intended for the gene product being expressed. For example, when large quantities of such a protein are to be produced for the generation of pharmaceutical compositions of a protein or for raising antibodies to the protein to be expressed, for example, vectors which direct the expression of high levels of fusion protein products that are readily purified may be desirable. Such vectors include, but are not limited to, the *E. coli* expression vector pUR278 (Ruther *et al.*, 1983, EMBO J. 2:1791), in which the coding sequence of the polynucleotide to be expressed may be ligated individually into the vector in frame with the *lacZ* coding region so that a fusion protein is produced; pIN vectors (Inouye & Inouye, 1985, Nucleic Acids Res. 13:3101-3109; Van Heeke & Schuster, 1989, J. Biol. Chem. 264:5503-5509); and the like. pGEX vectors may also be used to express foreign polypeptides as fusion proteins with glutathione S-transferase (GST). If the inserted sequence encodes a relatively small polypeptide (less than 25 kD), such fusion proteins are generally soluble and can easily be purified from lysed cells by adsorption to glutathione-agarose beads followed by elution in the presence of free glutathione. The pGEX vectors are designed to include thrombin or factor Xa protease cleavage sites so that the cloned target gene product can be released from the GST moiety. Alternatively, if the resulting fusion protein is insoluble and forms inclusion bodies in the host cell, the inclusion bodies may be purified and the recombinant protein solubilized using techniques well known to one of skill in the art.

In an insect system, *Autographa californica* nuclear polyhidrosis virus (AcNPV) may be used as a vector to express foreign genes. (e.g., see Smith *et al.*, 1983, J. Virol. 46: 584; Smith, U.S. Patent No. 4,215,051). In one embodiment of the current invention, Sf9 insect cells are infected with a baculovirus vector expressing a peptide or protein of the current invention.

In mammalian host cells, a number of viral-based expression systems may be utilized. Specific embodiments (described more fully below) include the gene trap cDNA sequences of the current invention that are expressed by a CMV promoter to transiently express recombinant protein in U937 cells or in Cos-7 cells. Alternatively, retroviral vector systems

well known in the art may be used to insert the recombinant expression construct into host cells, or vaccinia virus-based expression systems may be employed.

In yeast, a number of vectors containing constitutive or inducible promoters may be used. For a review, see Current Protocols in Molecular Biology, Vol. 2, 1988, Ed. Ausubel *et al.*, Greene Publish. Assoc. & Wiley Interscience, Ch. 13; Grant *et al.*, 1987, Expression and Secretion Vectors for Yeast, *in* Methods in Enzymology, Eds. Wu & Grossman, 1987, Acad. Press, N.Y., Vol. 153, pp. 516-544; Glover, 1986, DNA Cloning, Vol. II, IRL Press, Wash., D.C., Ch. 3; and Bitter, 1987, Heterologous Gene Expression in Yeast, Methods in Enzymology, Eds. Berger & Kimmel, Acad. Press, N.Y., Vol. 152, pp. 673-684; and The Molecular Biology of the Yeast *Saccharomyces*, 1982, Eds. Strathern *et al.*, Cold Spring Harbor Press, Vols. I and II.

In cases where plant expression vectors are used, the expression of the coding sequence may be driven by any of a number of promoters. For example, viral promoters such as the 35S RNA and 19S RNA promoters of CaMV (Brisson *et al.*, 1984, Nature, 310:511-514), or the coat protein promoter of TMV (Takamatsu *et al.*, 1987, EMBO J. 6:307-311) may be used; alternatively, plant promoters such as the small subunit of RUBISCO (Coruzzi *et al.*, 1984, EMBO J. 3:1671-1680; Broglie *et al.*, 1984, Science 224:838-843); or heat shock promoters, *e.g.*, soybean hsp17.5-E or hsp17.3-B (Gurley *et al.*, 1986, Mol. Cell. Biol. 6:559-565) may be used. These constructs can be introduced into plant cells using Ti plasmids, Ri plasmids, plant virus vectors, direct DNA transformation, microinjection, electroporation, etc. For reviews of such techniques see, for example, Weissbach & Weissbach, 1988, Methods for Plant Molecular Biology, Academic Press, NY, Section VIII, pp. 421-463; and Grierson & Corey, 1988, Plant Molecular Biology, 2d Ed., Blackie, London, Ch. 7-9.

In cases where an adenovirus is used as an expression vector, the nucleotide sequence of interest may be ligated to an adenovirus transcription/translation control complex, *e.g.*, the late promoter and tripartite leader sequence. This chimeric gene may then be inserted in the adenovirus genome by *in vitro* or *in vivo* recombination. Insertion in a non-essential region of the viral genome (*e.g.*, region E1 or E3) will result in a recombinant virus that is viable and capable of expressing the gene product of interest in infected hosts. (*e.g.*, See Logan & Shenk, 1984, Proc. Natl. Acad. Sci. USA 81:3655-3659). Specific initiation signals may also

be required for efficient translation of inserted nucleotide sequences of interest. These signals include the ATG initiation codon and adjacent sequences. In cases where an entire gene or cDNA, including its own initiation codon and adjacent sequences, is inserted into the appropriate expression vector, no additional translational control signals may be needed.

- 5 However, in cases where only a portion of a coding sequence of interest is inserted, exogenous translational control signals, including, perhaps, the ATG initiation codon, must be provided. Furthermore, the initiation codon must be in phase with the reading frame of the desired coding sequence to ensure translation of the entire insert. These exogenous translational control signals and initiation codons can be of a variety of origins, both natural and synthetic. The efficiency of expression may be enhanced by the inclusion of appropriate transcription enhancer elements, transcription terminators, etc. (See Bittner *et al.*, 1987, Methods in Enzymol. 153:516-544).

- 15 In addition, a host cell strain may be chosen which modulates the expression of the inserted sequences, or modifies and processes the gene product in the specific fashion desired. Such modifications (*e.g.*, glycosylation) and processing (*e.g.*, cleavage) of protein products may be important for the function of the protein. Different host cells have characteristic and specific mechanisms for the post-translational processing and modification of proteins and gene products. Appropriate cell lines or host systems can be chosen to ensure the correct modification and processing of the foreign protein expressed. To this end, eukaryotic host cells which possess the cellular machinery for proper processing of the primary transcript may be used. Such mammalian host cells include, but are not limited to, CHO, VERO, BHK, HeLa, COS, MDCK, 293, 3T3, WI38, and U937 cells.

- 25 For long-term, high-yield production of recombinant proteins, stable expression is preferred. For example, cell lines which stably express the sequences of interest described above may be engineered. Rather than using expression vectors which contain viral origins of replication, host cells can be transformed with DNA controlled by appropriate expression control elements (*e.g.*, promoter, enhancer sequences, transcription terminators, polyadenylation sites, etc.), and a selectable marker. Following the introduction of the foreign DNA, engineered cells may be allowed to grow for 1-2 days in an enriched media, and then are switched to a selective media. The selectable marker in the recombinant plasmid

confers resistance to the selection and allows cells to stably integrate the plasmid into their chromosomes and grow to form foci which in turn can be cloned and expanded into cell lines. This method may advantageously be used to engineer cell lines which express the gene product of interest. Such engineered cell lines may be particularly useful in screening and evaluation of compounds that affect the endogenous activity of the gene product of interest.

A number of selection systems may be used, including but not limited to the herpes simplex virus thymidine kinase (Wigler *et al.*, 1977, Cell 11:223), hypoxanthine-guanine phosphoribosyltransferase (Szybalska & Szybalski, 1962, Proc. Natl. Acad. Sci. USA 48:2026), and adenine phosphoribosyltransferase (Lowy *et al.*, 1980, Cell 22:817) genes can be employed in tk⁻, hgp^rt⁻ or ap^rt⁻ cells, respectively. Also, antimetabolite resistance can be used as the basis of selection for the following genes: dhfr, which confers resistance to methotrexate (Wigler *et al.*, 1980, Natl. Acad. Sci. USA 77:3567; O'Hare *et al.*, 1981, Proc. Natl. Acad. Sci. USA 78:1527); gpt, which confers resistance to mycophenolic acid (Mulligan & Berg, 1981, Proc. Natl. Acad. Sci. USA 78:2072); neo, which confers resistance to the aminoglycoside G-418 (Colberre-Garapin *et al.*, 1981, J. Mol. Biol. 150:1); and hyg^r, which confers resistance to hygromycin (Santerre *et al.*, 1984, Gene 30:147).

The gene products of interest can also be expressed in transgenic animals. Animals of any species, including, but not limited to, mice, rats, rabbits, guinea pigs, pigs, micro-pigs, goats, and non-human primates, *e.g.*, baboons, monkeys, and chimpanzees may be used to generate transgenic animals carrying the polynucleotide of interest of the current invention.

Any technique known in the art may be used to introduce the transgene of interest into animals to produce the founder lines of transgenic animals. Such techniques include, but are not limited to pronuclear microinjection (Hoppe, P.C. and Wagner, T.E., 1989, U.S. Pat. No. 4,873,191); retrovirus mediated gene transfer into germ lines (Van der Putten *et al.*, 1985, Proc. Natl. Acad. Sci., USA 82:6148-6152); gene targeting in embryonic stem cells (Thompson *et al.*, 1989, Cell 56:313-321); electroporation of embryos (Lo, 1983, Mol Cell. Biol. 3:1803-1814); sperm-mediated gene transfer (Lavitrano *et al.*, 1989, Cell 57:717-723); positive-negative selection as described in U.S. Patent No. 5,464,764 herein incorporated by reference. For a review of such techniques, see Gordon, 1989, Transgenic Animals, Intl. Rev. Cytol. 115:171-229, which is incorporated by reference herein in its entirety.

1
The present invention provides for transgenic animals that carry the transgene of
interest in all their cells, as well as animals which carry the transgene in some, but not all
their cells, *i.e.*, mosaic animals. The transgene may be integrated as a single transgene or in
concatamers, *e.g.*, head-to-head tandems or head-to-tail tandems. The transgene may also be
5 selectively introduced into and activated in a particular cell type by following, for example,
the teaching of Lasko *et al.* (Lasko, M. *et al.*, 1992, Proc. Natl. Acad. Sci. USA 89:6232-
6236). The regulatory sequences required for such a cell-type specific activation will depend
upon the particular cell type of interest, and will be apparent to those of skill in the art. When
it is desired that the transgene of interest be integrated into the chromosomal site of the
10 endogenous copy of that same gene, gene targeting is preferred. Briefly, when such a
technique is to be utilized, vectors containing some nucleotide sequences homologous to the
endogenous gene of interest are designed for the purpose of integrating, via homologous
recombination with chromosomal sequences, into and disrupting the function of the
nucleotide sequence of the endogenous gene of interest. In this way, the expression of the
15 endogenous gene may also be eliminated by inserting non-functional sequences into the
endogenous gene. The transgene may also be selectively introduced into a particular cell
type, thus inactivating the endogenous gene of interest in only that cell type, by following, for
example, the teaching of Gu *et al.* (Gu *et al.*, 1994, Science 265: 103-106). The regulatory
sequences required for such a cell-type specific inactivation will depend upon the particular
20 cell type of interest and will be apparent to those of skill in the art.

Once transgenic animals have been generated, the expression of the recombinant gene
of interest may be assayed utilizing standard techniques. Initial screening may be
accomplished by Southern blot analysis or PCR techniques to analyze animal tissues to assay
whether integration of the transgene has taken place. The level of mRNA expression of the
25 transgene in the tissues of the transgenic animals may also be assessed using techniques
which include, but are not limited to, Northern blot analysis of cell type samples obtained
from the animal, *in situ* hybridization analysis, and RT-PCR. Samples of gene-expressing
tissue, may also be evaluated immunocytochemically using antibodies specific for the
transgene product, as described below.

5.3 CELLS THAT CONTAIN A DISRUPTED ALLELE OF A GENE ENCODING A POLYNUCLEOTIDE OF THE CURRENT INVENTION

Another aspect of the current invention are cells which contain a gene that encodes a polynucleotide of the current invention and that has been disrupted. Those of skill in the art would know how to disrupt a gene in a cell using techniques known in the art. Also, techniques useful to disrupt a gene in a cell and especially an ES cell, that may already be disrupted, as disclosed in copending US patent applications Nos. 08/726,867; 08/728,963; 08/907,598; and 08/942,806, all of which are hereby incorporated herein by reference in their entirety, are within the scope of the current invention to disrupt a gene that encodes a polynucleotide of the current invention.

5.3.1 IDENTIFICATION OF CELLS THAT EXPRESS GENES ENCODING POLYNUCLEOTIDES OF THE CURRENT INVENTION

Host cells that contain coding sequence and/or express a biologically active gene product, or fragment thereof, encoded by a gene corresponding to a GTS present invention may be identified by at least four general approaches; (a) DNA-DNA or DNA-RNA hybridization; (b) the presence or absence of "marker" gene functions; (c) assessing the level of transcription as measured by the expression of mRNA transcripts in the host cell; and (d) detection of the gene product as measured by immunoassay, enzymatic assay, chemical assay, or by its biological activity. Prior to screening for gene expression, the host cells can first be treated in an effort to increase the level of expression of genes encoding polynucleotides of the current invention, especially in cell lines that produce low amounts of the mRNAs and/or peptides and proteins of the current invention.

In the first approach, the presence of the coding sequence for peptides and proteins of the current invention inserted in the expression vector can be detected by DNA-DNA or DNA-RNA hybridization using probes comprising nucleotide sequences that are homologous to the coding sequence for peptides and proteins of the current invention, respectively, or portions or derivatives thereof.

In the second approach, the recombinant expression vector/host system can be identified and selected based upon the presence or absence of certain "marker" gene functions

(e.g., thymidine kinase activity, resistance to antibiotics, resistance to methotrexate, transformation phenotype, occlusion body formation in baculovirus, etc.). For example, if the coding sequence for the peptide or protein of the current invention is inserted within a marker gene sequence of the vector, recombinants containing the coding sequence for the peptide or protein of the current invention can be identified by the absence of the marker gene function. Alternatively, a marker gene can be placed in tandem with the sequence for the peptide or protein of the current invention under the control of the same or different promoter used to control the expression of the coding sequence for the peptide or protein of the current invention. Expression of the marker in response to induction or selection indicates expression of the coding sequence for the peptide or protein of the current invention.

In the third approach, transcriptional activity for the coding region of genes specific for peptides and proteins of the current invention can be assessed by hybridization assays. For example, RNA can be isolated and analyzed by Northern blot using a probe derived from a GTS, or any portion thereof. Alternatively, total nucleic acids of the host cell may be extracted and assayed for hybridization to such probes. Additionally, RT-PCR (using GTS specific oligos/products) may be used to detect low levels of gene expression in a sample, or in RNA isolated from a spectrum of different tissues, or PCR can be used to screen a variety of cDNA libraries derived from different tissues to determine which tissues express a given GTS.

In the fourth approach, the expression of the peptides and proteins of the current invention can be assessed immunologically, for example by Western blots, immunoassays such as radioimmuno-precipitation, enzyme-linked immunoassays and the like. This can be achieved by using an antibody and a binding partner specific to a peptide or protein of the current invention.

5.4 ANTIBODIES TO PROTEINS OF THE CURRENT INVENTION

Antibodies that specifically recognize one or more epitopes of a peptide or protein of the current invention, or epitopes of conserved variants of a peptide or protein at least partially encoded by a GTS of the present invention, or any and all peptide fragments thereof, are also encompassed by the invention. Such antibodies include, but are not limited

to, polyclonal antibodies, monoclonal antibodies (mAbs), humanized or chimeric antibodies, single chain antibodies, Fab fragments, F(ab')₂ fragments, fragments produced by a Fab expression library, anti-idiotypic (anti-Id) antibodies, and epitope-binding fragments of any of the above.

5 The antibodies of the invention may be used, for example, in the detection of the peptide or protein of interest of the current invention in a biological sample and may, therefore, be utilized as part of a diagnostic or prognostic technique whereby patients may be tested for abnormal amounts of these proteins. Such antibodies may also be utilized in conjunction with, for example, compound screening schemes as described, below in Section 10 5.6 for the evaluation of the effect of test compounds on expression and/or activity of the gene products of interest of the current invention. Additionally, such antibodies can be used in conjunction with the gene therapy and gene delivery techniques described below to, for example, evaluate the normal and/or engineered peptide- or protein-expressing cells prior to their introduction into the patient. Such antibodies may additionally be used as a method for 15 inhibiting the abnormal activity of a peptide or protein of interest at least partially encoded by a GTS of the present invention. Thus, such antibodies may, for example, be utilized as part of treatment methods for development and cell differentiation disorders.

For the production of antibodies, various host animals may be immunized by injection with the peptide or protein of interest, a subunit peptide of such protein, a truncated 20 polypeptide, functional equivalents of the peptide or protein, mutants of the peptide or protein, or denatured forms of the above. Such host animals may include, but are not limited to, rabbits, mice, and rats, to name but a few. Various adjuvants can be used to increase the immunological response, depending on the host species, including but not limited to Freund's (complete and incomplete), mineral gels such as aluminum hydroxide, surface active 25 substances such as lysolecithin, pluronic polyols, polyanions, peptides, oil emulsions, keyhole limpet hemocyanin, dinitrophenol, and potentially useful human adjuvants such as BCG (bacille Calmette-Guerin) and *Corynebacterium parvum*. Polyclonal antibodies are heterogeneous populations of antibody molecules derived from the sera of the immunized animals.

Monoclonal antibodies, which are homogeneous populations of antibodies to a particular antigen, may be obtained by any technique which provides for the production of antibody molecules by continuous cell lines in culture. These include, but are not limited to, the hybridoma technique of Kohler and Milstein, (1975, *Nature* 256:495-497; and U.S. Patent No. 4,376,110), the human B-cell hybridoma technique (Kosbor *et al.*, 1983, *Immunology Today* 4:72; Cole *et al.*, 1983, *Proc. Natl. Acad. Sci. USA* 80:2026-2030), and the EBV-hybridoma technique (Cole *et al.*, 1985, *Monoclonal Antibodies And Cancer Therapy*, Alan R. Liss, Inc., pp. 77-96). Such antibodies may be of any immunoglobulin class including IgG, IgM, IgE, IgA, IgD and any subclass thereof. The hybridoma producing the mAb of this invention may be cultivated *in vitro* or *in vivo*. Production of high titers of mAbs *in vivo* makes this the presently preferred method of production.

In addition, techniques developed for the production of "chimeric antibodies" (Morrison *et al.*, 1984, *Proc. Natl. Acad. Sci. USA*, 81:6851-6855; Neuberger *et al.*, 1984, *Nature*, 312:604-608; Takeda *et al.*, 1985, *Nature*, 314:452-454) by splicing the genes from a mouse antibody molecule of appropriate antigen specificity together with genes from a human antibody molecule of appropriate biological activity can be used. A chimeric antibody is a molecule in which different portions are derived from different animal species, such as those having a variable region derived from a porcine mAb and a human immunoglobulin constant region.

Alternatively, techniques described for the production of single chain antibodies (U.S. Patent 4,946,778; Bird, 1988, *Science* 242:423-426; Huston *et al.*, 1988, *Proc. Natl. Acad. Sci. USA* 85:5879-5883; and Ward *et al.*, 1989, *Nature* 334:544-546) can be adapted to produce single chain antibodies against gene products of interest. Single chain antibodies are formed by linking the heavy and light chain fragments of the Fv region via an amino acid bridge, resulting in a single chain polypeptide.

Antibody fragments which recognize specific epitopes may be generated by known techniques. For example, such fragments include, but are not limited to: the F(ab')₂ fragments which can be produced by pepsin digestion of the antibody molecule and the Fab fragments which can be generated by reducing the disulfide bridges of the F(ab')₂ fragments.

Alternatively, Fab expression libraries may be constructed (Huse *et al.*, 1989, *Science*,

246:1275-1281) to allow rapid and easy identification of monoclonal Fab fragments with the desired specificity.

Antibodies to peptides and proteins that are fully or at least partially encoded by the described GTSs, or fragments or truncated versions thereof, can in turn be utilized to generate anti-idiotypic antibodies that "mimic" an epitope of the peptide or protein of interest, using techniques well known to those skilled in the art. (See, *e.g.*, Greenspan & Bona, 1993, FASEB J 7(5):437-444; and Nissinoff, 1991, J. Immunol. 147(8):2429-2438). For example antibodies that bind to a regulatory peptide or protein of interest of the current invention and competitively inhibit the binding of such peptide or protein to any of its binding partners in the cell can be used to generate anti-idiotypes that "mimic" the peptide or protein of interest and, therefore, bind and neutralize the particular binding partner of the peptide or protein of interest. Such neutralizing antibodies, anti-idiotypes, Fab fragments of such antibodies, or humanized derivatives thereof, can be used in therapeutic regimens to mimic or neutralize (depending on the antibody) the effect of a particular peptide of interest, or a binding partner of a peptide or protein of interest.

5.5 DIAGNOSIS OF DISORDERS AFFECTING DEVELOPMENT AND CELL DIFFERENTIATION

A variety of methods can be employed for the diagnostic and prognostic evaluation of disorders involving developmental and differentiation processes, and for the identification of subjects having a predisposition to such disorders.

Such methods may, for example, utilize reagents such as the nucleotide sequences described above, and antibodies to peptides and proteins of the current invention, as described, in Section 5.4. Specifically, such reagents may be used, for example, for: (1) the detection of the presence of gene mutations, or the detection of either over- or under-expression of the respective mRNAs relative to the non-disorder state; (2) the detection of either an over- or an under-abundance of the respective gene product relative to the non-disorder state; and (3) the detection of perturbations or abnormalities in the intra- and inter-cellular processes mediated by the respective peptides or proteins of the current invention.

5 The methods described herein may be performed, for example, by utilizing pre-packaged diagnostic kits comprising at least one specific nucleotide sequence of the current invention or antibody reagent described herein, which may be conveniently used, *e.g.*, in clinical settings, to diagnose patients exhibiting developmental or cell differentiation disorder abnormalities.

10 For the detection of mutations in any of the genes described above, any nucleated cell can be used as a starting source for genomic nucleic acid. For the detection of gene expression or gene products, any cell type or tissue in which the gene of interest is expressed, such as, for example, ES cells, may be utilized. Specific examples of cells and tissues that can be analyzed using the claimed polynucleotides include, but are not limited to, endothelial cells, epithelial cells, islets, neurons or neural tissue, mesothelial cells, osteocytes, lymphocytes, chondrocytes, hematopoietic cells, immune cells, cells of the major glands or organs (*e.g.*, lung, heart, stomach, pancreas, kidney, skin, etc.), exocrine and/or endocrine cells, embryonic and other stem cells, fibroblasts, and culture adapted and/or transformed
15 versions of the above. Diseases or natural processes that can also be correlated with the expression of mutant, or normal, variants of the disclosed GTSs include, but are not limited to, aging, cancer, autoimmune disease, lupus, scleroderma, Crohn's disease, multiple sclerosis, inflammatory bowel disease, immune disorders, schizophrenia, psychosis, alopecia, glandular disorders, inflammatory disorders, ataxia telangiectasia, diabetes, skin disorders
20 such as acne, eczema, and the like, osteo and rheumatoid arthritis, high blood pressure, atherosclerosis, cardiovascular disease, pulmonary disease, degenerative diseases of the neural or skeletal systems, Alzheimer's disease, Parkinson's disease, osteoporosis, asthma, developmental disorders or abnormalities, genetic birth defects, infertility, epithelial ulcerations, and viral, parasitic, fungal, yeast, or bacterial infection.

25 Primary, secondary, or culture-adapted variants of cancer cells/tissues can also be analyzed using the claimed polynucleotides. Examples of such cancers include, but are not limited to, Cardiac: sarcoma (angiosarcoma, fibrosarcoma, rhabdomyosarcoma, liposarcoma), myxoma, rhabdomyoma, fibroma, lipoma and teratoma; Lung: bronchogenic carcinoma (squamous cell, undifferentiated small cell, undifferentiated large cell, adenocarcinoma),
30 alveolar (bronchiolar) carcinoma, bronchial adenoma, sarcoma, lymphoma, chondromatous

- hamartoma, mesothelioma; Gastrointestinal: esophagus (squamous cell carcinoma, adenocarcinoma, leiomyosarcoma, lymphoma), stomach (carcinoma, lymphoma, leiomyosarcoma), pancreas (ductal adenocarcinoma, insulinoma, glucagonoma, gastrinoma, carcinoid tumors, vipoma), small bowel (adenocarcinoma, lymphoma, carcinoid tumors,
- 5 Kaposi's sarcoma, leiomyoma, hemangioma, lipoma, neurofibroma, fibroma), large bowel (adenocarcinoma, tubular adenoma, villous adenoma, hamartoma, leiomyoma); Genitourinary tract: kidney (adenocarcinoma, Wilm's tumor [nephroblastoma], lymphoma, leukemia), bladder and urethra (squamous cell carcinoma, transitional cell carcinoma, adenocarcinoma), prostate (adenocarcinoma, sarcoma), testis (seminoma, teratoma, embryonal carcinoma,
- 10 teratocarcinoma, choriocarcinoma, sarcoma, interstitial cell carcinoma, fibroma, fibroadenoma, adenomatoid tumors, lipoma); Liver: hepatoma (hepatocellular carcinoma), cholangiocarcinoma, hepatoblastoma, angiosarcoma, hepatocellular adenoma, hemangioma; Bone: osteogenic sarcoma (osteosarcoma), fibrosarcoma, malignant fibrous histiocytoma, chondrosarcoma, Ewing's sarcoma, malignant lymphoma (reticulum cell sarcoma), multiple
- 15 myeloma, malignant giant cell tumor, chordoma, osteochondroma (osteochondrogenous exostoses), benign chondroma, chondroblastoma, chondromyxofibroma, osteoid osteoma and giant cell tumors; Nervous system: skull (osteoma, hemangioma, granuloma, xanthoma, osteitis deformans), meninges (meningioma, meningiosarcoma, gliomatosis), brain (astrocytoma, medulloblastoma, glioma, ependymoma, germinoma [pinealoma], glioblastoma
- 20 multiforme, oligodendroglioma, schwannoma, retinoblastoma, congenital tumors), spinal cord (neurofibroma, meningioma, glioma, sarcoma); Gynecological: uterus (endometrial carcinoma), cervix (cervical carcinoma, pre-tumor cervical dysplasia), ovaries (ovarian carcinoma [serous cystadenocarcinoma, mucinous cystadenocarcinoma, endometrioid tumors, celioblastoma, clear cell carcinoma, unclassified carcinoma], granulosa-thecal cell tumors,
- 25 Sertoli-Leydig cell tumors, dysgerminoma, malignant teratoma), vulva (squamous cell carcinoma, intraepithelial carcinoma, adenocarcinoma, fibrosarcoma, melanoma), vagina (clear cell carcinoma, squamous cell carcinoma, botryoid sarcoma [embryonal rhabdomyosarcoma], fallopian tubes (carcinoma); Hematologic: blood (myeloid leukemia [acute and chronic], acute lymphoblastic leukemia, chronic lymphocytic leukemia,
- 30 myeloproliferative diseases, multiple myeloma, myelodysplastic syndrome), Hodgkin's

disease, non-Hodgkin's lymphoma [malignant lymphoma]; Skin: malignant melanoma, basal cell carcinoma, squamous cell carcinoma, Kaposi's sarcoma, moles, dysplastic nevi, lipoma, angioma, dermatofibroma, keloids, psoriasis; Breast: carcinoma and sarcoma, and Adrenal glands: neuroblastoma.

5 Nucleic acid-based detection techniques and peptide detection techniques that can be used to conduct the above analyses are described below.

5.5.1. DETECTION OF THE GENES OF THE CURRENT INVENTION AND THEIR RESPECTIVE TRANSCRIPTS

10 Mutations within the genes of the current invention can be detected by utilizing a number of techniques. Nucleic acid from any nucleated cell can be used as the starting point for such assay techniques, and may be isolated according to standard nucleic acid preparation procedures which are well known to those of skill in the art.

15 DNA may be used in hybridization or amplification assays of biological samples to detect abnormalities involving gene structure, including point mutations, insertions, deletions and chromosomal rearrangements. Such assays may include, but are not limited to, Southern analyses, single stranded conformational polymorphism analyses (SSCP), and PCR analyses.

20 Such diagnostic methods for the detection of gene-specific mutations can involve for example, contacting and incubating nucleic acids including recombinant DNA molecules, cloned genes or degenerate variants thereof, obtained from a sample, *e.g.*, derived from a patient sample or other appropriate cellular source, with one or more labeled nucleic acid reagents including recombinant DNA molecules, cloned genes or degenerate variants thereof, as described above, under conditions favorable for the specific annealing of these reagents to
25 their complementary sequences within the gene of interest of the current invention.

Preferably, the lengths of these nucleic acid reagents are at least 15 to 30 nucleotides. After incubation, all non-annealed nucleic acids are removed from the nucleic acid molecule hybrid. The presence of nucleic acids which have hybridized, if any such molecules exist, is then detected. Using such a detection scheme, the nucleic acid from the cell type or tissue of
30 interest can be immobilized, for example, to a solid support such as a membrane, or a plastic surface such as that on a microtiter plate or polystyrene beads. In this case, after incubation,

non-annealed, labeled nucleic acid reagents of the type described above are easily removed. Detection of the remaining, annealed, labeled nucleic acid reagents is accomplished using standard techniques well-known to those in the art. The gene sequences to which the nucleic acid reagents have annealed can be compared to the annealing pattern expected from a normal gene sequence in order to determine whether a gene mutation is present.

Alternative diagnostic methods for the detection of gene specific nucleic acid molecules, in patient samples or other appropriate cell sources, may involve their amplification, *e.g.*, by PCR (the experimental embodiment set forth in Mullis, K.B., 1987, U.S. Patent No. 4,683,202), followed by the detection of the amplified molecules using techniques well known to those of skill in the art. The resulting amplified sequences can be compared to those which would be expected if the nucleic acid being amplified contained only normal copies of the respective gene in order to determine whether a gene mutation exists.

Additionally, well-known genotyping techniques can be performed to identify individuals carrying mutations in any of the genes of the current invention. Such techniques include, for example, the use of restriction fragment length polymorphisms (RFLPs), which involve sequence variations in one of the recognition sites for the specific restriction enzyme used.

Furthermore, the polynucleotide sequences of the current invention may be mapped to chromosomes and specific regions of chromosomes using well known genetic and/or chromosomal mapping techniques. These techniques include *in situ* hybridization, linkage analysis against known chromosomal markers, hybridization screening with libraries or flow-sorted chromosomal preparations specific to known chromosomes, and the like. The technique of fluorescent *in situ* hybridization of chromosome spreads has been described, for example, in Verma *et al.* (1988) Human Chromosomes: A Manual of Basic Techniques, Pergamon Press, New York. Fluorescent *in situ* hybridization of chromosomal preparations and other physical chromosome mapping techniques may be correlated with additional genetic map data. Examples of genetic map data can be found, for example, in Genetic Maps: Locus Maps of Complex Genomes, Book 5: Human Maps, O'Brien, editor, Cold

Spring Harbor Laboratory Press (1990). Comparisons of physical chromosomal map data may be of particular interest in detecting genetic diseases in carrier states.

The level of expression of genes can also be assayed by detecting and measuring the transcription of such genes. For example, RNA from a cell type or tissue known, or

5 suspected to express any of the genes of the current invention can be isolated and tested utilizing hybridization or PCR techniques (e.g., northern or RT PCR) such as those described, above. Such analyses may reveal both quantitative and qualitative aspects of the expression pattern of the respective gene, including activation or inactivation of gene expression. *In situ* hybridization using suitable radioactive labels, enzymatic labels, or chemically tagged forms
10 of the described polynucleotide sequences can also be used to assess expression patterns *in vivo*.

Additionally, an oligonucleotide or polynucleotide sequence first disclosed in at least a portion of one of the GTS sequences of SEQ ID NOS:9-1008 can be used as a hybridization probe in conjunction with a solid support matrix/substrate (resins, beads, membranes,
15 plastics, polymers, metal or metallized substrates, crystalline or polycrystalline substrates, etc.). Of particular note are spatially addressable arrays (*i.e.*, gene chips, microtiter plates, etc.) of oligonucleotides and polynucleotides, or corresponding oligopeptides and polypeptides, wherein at least one of the biopolymers present on the spatially addressable array comprises an oligonucleotide or polynucleotide sequence first disclosed in at least one
20 of the GTS sequences of SEQ ID NOS:9-1008, or an amino acid sequence encoded thereby. Methods for attaching biopolymers to, or synthesizing biopolymers on, solid support matrices, and conducting binding studies thereon are disclosed in, *inter alia*, U.S. Patent Nos. 5,556,752, 5,744,305, 4,631,211, 5,445,934, 5,252,743, 4,713,326, 5,424,186, and 4,689,405 the disclosures of which are herein incorporated by reference in their entirety.

25 Oligonucleotides corresponding to the described GTSs can be used as hybridization probes either singly or in chip format. For example, a series of such GTS oligonucleotide sequences, or the complements thereof, can be used to represent all or a portion of the described GTS sequences. The oligonucleotides, typically between about 16 to about 40 (or any whole number within the stated range) nucleotides in length, may partially overlap each
30 other and/or the NHP sequence may be represented using oligonucleotides that do not

overlap. Accordingly, the described NHP polynucleotide sequences shall typically comprise at least about two or three distinct oligonucleotide sequences of at least about 18, and preferably about 25, nucleotides in length that are first disclosed in the described Sequence Listing. Such oligonucleotide sequences may begin at any nucleotide present within a
5 sequence in the Sequence Listing and proceed in either a sense (5'-to-3') orientation vis-a-vis the described sequence or in an antisense orientation.

Although the presently described GTSs have been specifically described using nucleotide sequence, it should be appreciated that each of the GTSs can uniquely be described using any of a wide variety of additional structural attributes, or combinations
10 thereof. For example, a given GTS can be described by the net composition of the nucleotides present within a given region of the GTS in conjunction with the presence of one or more specific oligonucleotide sequence(s) first disclosed in the GTS. Alternatively, a restriction map specifying the relative positions of restriction endonuclease digestion sites, or various palindromic or other specific oligonucleotide sequences can be used to structurally
15 describe a given GTS. Such restriction maps, which are typically generated by widely available computer programs (e.g., the University of Wisconsin GCG sequence analysis package, SEQUENCHER 3.0, Gene Codes Corp., Ann Arbor, MI, etc.), can optionally be used in conjunction with one or more discrete nucleotide sequence(s) present in the GTS that can be described by the relative position of the sequence relative to one or more additional
20 sequence(s) or one or more restriction sites present in the GTS.

5.5.2 DETECTION OF THE GENE PRODUCTS OF THE CURRENT INVENTION

25 Antibodies directed against wild type or mutant gene products of the current invention or conserved variants or peptide fragments thereof, which are discussed above in Section 5.4 may also be used as diagnostics and prognostics for disorders affecting development and cellular differentiation, as described herein. Such diagnostic methods, may be used to detect abnormalities in the level of gene expression, or abnormalities in the structure and/or
30 temporal, tissue, cellular, or subcellular location of the respective gene product, and may be performed *in vivo* or *in vitro*, such as, for example, on biopsy tissue.

The tissue or cell type to be analyzed will generally include those which are known, or suspected, to contain cells that express the respective gene. The protein isolation methods employed herein may, for example, be such as those described in Harlow and Lane (Harlow, E. and Lane, D., 1988, "Antibodies: A Laboratory Manual", Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York), which is incorporated herein by reference in its entirety. The isolated cells can be derived from cell culture or from a patient. The analysis of cells taken from culture may be a necessary step in the assessment of cells that could be used as part of a cell-based gene therapy technique or, alternatively, to test the effect of compounds on the expression of the respective gene.

For example, antibodies, or fragments of antibodies, such as those described above in Section 5.4 are also useful in the present invention to quantitatively or qualitatively detect the presence of gene products of the current invention or conserved variants or peptide fragments thereof. This can be accomplished, for example, by immunofluorescence techniques employing a fluorescently labeled antibody (see below, this Section) coupled with light microscopic, flow cytometric, or fluorimetric detection.

The antibodies (or fragments thereof) or fusion or conjugated proteins useful in the present invention may, additionally, be employed histologically, as in immunofluorescence, immunoelectron microscopy or non-immuno assays, for *in situ* detection of gene products of the current invention or conserved variants or peptide fragments thereof, or for catalytic subunit binding (in the case of labeled catalytic subunit fusion protein).

In situ detection may be accomplished by removing a histological specimen from a patient, and applying thereto a labeled antibody or fusion protein of the present invention. The antibody (or fragment) or fusion protein is preferably applied by overlaying the labeled antibody (or fragment) onto a biological sample. Through the use of such a procedure, it is possible to determine not only the presence of the gene product of the current invention, or conserved variants or peptide fragments, but also its distribution in the examined tissue. Using the present invention, those of ordinary skill will readily perceive that any of a wide variety of histological methods (such as staining procedures) can be modified in order to achieve such *in situ* detection.

Immunoassays and non-immunoassays for gene products of the current invention or conserved variants or peptide fragments thereof will typically comprise incubating a sample, such as a biological fluid, a tissue extract, freshly harvested cells, or lysates of cells which have been incubated in cell culture, in the presence of a detectably labeled antibody capable of identifying the respective gene products of interest or conserved variants or peptide fragments thereof, and detecting the bound antibody by any of a number of techniques well-known in the art.

The biological sample may be brought in contact with and immobilized onto a solid phase support or carrier such as nitrocellulose, or other solid support which is capable of immobilizing cells, cell particles or soluble proteins. The support may then be washed with suitable buffers followed by treatment with the detectably labeled antibody specific to the peptide or protein of interest of the current invention or with fusion protein. The solid phase support may then be washed with the buffer a second time to remove unbound antibody or fusion protein. The amount of bound label on solid support may then be detected by conventional means.

"Solid phase support or carrier" is intended to encompass any support capable of binding an antigen or an antibody. Well-known supports or carriers include glass, polystyrene, polypropylene, polyethylene, dextran, nylon, amylases, natural and modified celluloses, polyacrylamides, gabbros, and magnetite. The nature of the carrier can be either soluble to some extent or insoluble for the purposes of the present invention. The support material may have virtually any possible structural configuration so long as the coupled molecule is capable of binding to an antigen or antibody. Thus, the support configuration may be spherical, as in a bead, or cylindrical, as in the inside surface of a test tube, or the external surface of a rod. Alternatively, the surface may be flat such as a sheet, test strip, etc. Preferred supports include polystyrene beads. Those skilled in the art will know many other suitable carriers for binding antibody or antigen, or will be able to ascertain the same by use of routine experimentation.

The binding activity of a given lot of antibody or fusion protein may be determined according to well known methods. Those skilled in the art will be able to determine operative and optimal assay conditions for each determination by employing routine experimentation.

With respect to antibodies, one of the ways in which the antibody can be detectably labeled is by linking the same to an enzyme and use in an enzyme immunoassay (EIA) (Voller, "The Enzyme Linked Immunosorbent Assay (ELISA)", 1978, Diagnostic Horizons 2:1-7, Microbiological Associates Quarterly Publication, Walkersville, MD); Voller *et al.*, 1978, J. Clin. Pathol. 31:507-520; Butler, 1981, Meth. Enzymol. 73:482-523; Maggio (ed.), 1980, Enzyme Immunoassay, CRC Press, Boca Raton, FL.; Ishikawa *et al.*, (eds.), 1981, Enzyme Immunoassay, Kaku Shoin, Tokyo). The enzyme which is bound to the antibody will react with an appropriate substrate, preferably a chromogenic substrate, in such a manner as to produce a chemical moiety which can be detected, for example, by spectrophotometric, fluorimetric or by visual means. Enzymes which can be used to detectably label the antibody include, but are not limited to, malate dehydrogenase, staphylococcal nuclease, delta-5-steroid isomerase, yeast alcohol dehydrogenase, alpha-glycerophosphate, dehydrogenase, triose phosphate isomerase, horseradish peroxidase, alkaline phosphatase, asparaginase, glucose oxidase, beta-galactosidase, ribonuclease, urease, catalase, glucose-6-phosphate dehydrogenase, glucoamylase and acetylcholinesterase. The detection can be accomplished by colorimetric methods which employ a chromogenic substrate for the enzyme. Detection may also be accomplished by visual comparison of the extent of enzymatic reaction of a substrate in comparison with similarly prepared standards.

Detection may also be accomplished using any of a variety of other immunoassays. For example, by radioactively labeling the antibodies or antibody fragments, it is possible to detect the peptide or protein of interest through the use of a radioimmunoassay (RIA) (see, for example, Weintraub, B., Principles of Radioimmunoassays, Seventh Training Course on Radioligand Assay Techniques, The Endocrine Society, March, 1986, which is incorporated by reference herein). The radioactive isotope can be detected by such means as the use of a gamma counter or a scintillation counter or by autoradiography.

It is also possible to label the antibody with a fluorescent compound. When the fluorescently labeled antibody is exposed to light of the proper wave length, its presence can then be detected due to fluorescence. Among the most commonly used fluorescent labeling compounds are fluorescein isothiocyanate, rhodamine, phycoerythrin, phycocyanin, allophycocyanin and fluorescamine.

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The antibody can also be detectably labeled using fluorescence emitting metals such as ¹⁵²Eu, or others of the lanthanide series. These metals can be attached to the antibody using such metal chelating groups as diethylenetriaminepentacetic acid (DTPA) or ethylenediaminetetraacetic acid (EDTA).

5 The antibody also can be detectably labeled by coupling it to a chemiluminescent compound. The presence of the chemiluminescent-tagged antibody is then determined by detecting the presence of luminescence that arises during the course of a chemical reaction. Examples of particularly useful chemiluminescent labeling compounds are luminol, isoluminol, thiomethyl acridinium ester, imidazole, acridinium salt and oxalate ester.

10 Likewise, a bioluminescent compound may be used to label the antibody of the present invention. Bioluminescence is a type of chemiluminescence found in biological systems in, which a catalytic protein increases the efficiency of the chemiluminescent reaction. The presence of a bioluminescent protein is determined by detecting the presence of luminescence. Important bioluminescent compounds for labeling purposes include, but are
15 not limited to, luciferin, luciferase and aequorin.

An additional use of a peptide or polypeptide encoded by an oligonucleotide or polynucleotide sequence first disclosed in at least one of the GTS sequences of SEQ ID NOS:9-1008 is by incorporating the sequence into a phage display, or other peptide library/binding, system that can be used to screen for proteins, or other ligands, that are
20 capable of binding to an amino acid sequence encoded by an oligonucleotide or polynucleotide sequence first disclosed in at least one of the GTS sequences of SEQ ID NOS:9-1008 (see U.S. Patents Nos. 5,270,170, and 5,432,018, herein incorporated by reference in their entirety). Moreover, peptide arrays comprising a novel amino acid sequence corresponding to a portion of at least one of the polynucleotide sequences first
25 disclosed in SEQ ID NOS:9-1008 can be generated and screened essentially as described in U.S. Patents Nos. 5,143,854, 5,405,783, and 5,252,743, the complete disclosures of which are herein incorporated by references.

30 Additionally, the presently described GTSs, or primers derived therefrom, can be used to screen spatially addressable arrays, or pools therefrom, of clones present in a full-length human cDNA library. The 96 well microtiter plate format is especially well-suited to the

screening, by PCR for example, of pooled subfractions of cDNA clones.

5.6 SCREENING ASSAYS FOR COMPOUNDS THAT MODULATE THE EXPRESSION OR ACTIVITY OF PEPTIDES AND PROTEINS OF THE CURRENT INVENTION

The following assays are designed to identify compounds that interact with (*e.g.*, bind to) peptides and proteins at least partially encoded by one of SEQ ID NOS:9-1008 (*i.e.*, peptides or proteins of the current invention) compounds that interact with (*e.g.*, bind to) intracellular proteins that interact with peptides and proteins of the current invention, compounds that interfere with the interaction of peptides and proteins of the current invention with each other and with other intracellular proteins involved in developmental and cell differentiation processes, and to compounds which modulate the activity of genes of the current invention (*i.e.*, modulate the level of expression of genes of the current invention) or modulate the level of gene products of the current invention. Assays may additionally be utilized which identify compounds which bind to gene regulatory sequences (*e.g.*, promoter sequences) and which may modulate the expression of genes of the current invention. See *e.g.*, Platt, K.A., 1994, J. Biol. Chem. 269:28558-28562, which is incorporated herein by reference in its entirety.

Compounds that can be screened in accordance with the invention include, but are not limited to, peptides, antibodies and fragments thereof, prostaglandins, lipids and other organic compounds (*e.g.*, terpenes, peptidomimetics) that bind to the peptide or protein of interest of the current invention and either mimic the activity triggered by the natural ligand (*i.e.*, agonists) or inhibit the activity triggered by the natural ligand (*i.e.*, antagonists); as well as peptides, antibodies or fragments thereof, and other organic compounds that mimic the peptide or protein of interest of the current invention (or a portion thereof) and bind to and "neutralize" natural ligand.

Such compounds may include, but are not limited to, peptides such as, for example, soluble peptides, including but not limited to members of random peptide libraries (see, *e.g.*, Lam, K.S. *et al.*, 1991, Nature 354:82-84; Houghten, R. *et al.*, 1991, Nature 354:84-86), and combinatorial chemistry-derived molecular library peptides made of D- and/or L-configuration amino acids, phosphopeptides (including, but not limited to, members of

random or partially degenerate, directed phosphopeptide libraries; see, *e.g.*, Songyang, Z. *et al.*, 1993, Cell 72:767-778); antibodies (including, but not limited to, polyclonal, monoclonal, humanized, anti-idiotypic, chimeric or single chain antibodies, and Fab, F(ab')₂ and Fab expression library fragments, and epitope-binding fragments thereof); and small organic or inorganic molecules.

Other compounds that can be screened in accordance with the invention include, but are not limited to, small organic molecules that are able to gain entry into an appropriate cell (*e.g.*, in ES cells) and affect the expression of a gene of the current invention or some other gene involved in development and cell differentiation (*e.g.*, by interacting with the regulatory region or transcription factors involved in gene expression); or such compounds that affect the activity of the peptide or protein of interest of the current invention, *e.g.*, by inhibiting or enhancing the binding of such peptide or protein to another cellular peptide or protein, or other factor, necessary for catalysis, signal transduction, or the like, that is involved in developmental or cell differentiation processes.

Computer modeling and searching technologies permit the identification of compounds, or the improvement of already identified compounds, that can modulate the expression or activity of peptides or proteins of interest of the current invention. Having identified such a compound or composition, the active sites or regions are identified. Such active sites might typically be the binding partner sites, such as, for example, the interaction domains of the peptides and proteins of the current invention with their respective binding partners. The active site can be identified using methods known in the art including, for example, from study of the amino acid sequences of peptides, from the nucleotide sequences of nucleic acids, or from study of complexes of the relevant compound or composition with its natural ligand. In the latter case, chemical or X-ray crystallographic methods can be used to find the active site by finding where on the factor the complexed ligand is found.

Next, the three dimensional geometric structure of the active site is determined. This can be done by known methods, including X-ray crystallography, which can determine a complete molecular structure. On the other hand, solid or liquid phase NMR can be used to determine certain intra-molecular distances. Any other experimental method of structure determination can be used to obtain partial or complete geometric structures. The geometric

structures may be measured with a complexed ligand, natural or artificial, which may increase the accuracy of the active site structure determined.

If an incomplete or insufficiently accurate structure is determined, the methods of computer based numerical modeling can be used to complete the structure or improve its accuracy. Any recognized modeling method may be used, including parameterized models specific to particular biopolymers such as proteins or nucleic acids, molecular dynamics models based on computing molecular motions, statistical mechanics models based on thermal ensembles, or combined models. For most types of models, standard molecular force fields, representing the forces between constituent atoms and groups, are necessary, and can be selected from force fields known in physical chemistry. The incomplete or less accurate experimental structures can serve as constraints on the complete and more accurate structures computed by these modeling methods.

Finally, having determined the structure of the active site, either experimentally, by modeling, or by a combination, candidate modulating compounds can be identified by searching databases containing compounds along with information on their molecular structure. Such a search seeks compounds having structures that match the determined active site structure and that interact with the groups defining the active site. Such a search can be manual, but is preferably computer assisted. These compounds found from this search are potential modulating compounds of the peptides and proteins of interest of the current invention.

Alternatively, these methods can be used to identify improved modulating compounds from an already known modulating compound or ligand. The composition of the known compound can be modified and the structural effects of modification can be determined using the experimental and computer modeling methods described above applied to the new composition. The altered structure is then compared to the active site structure of the compound to determine if an improved fit or interaction results. In this manner, systematic variations in composition, such as by varying side groups, can be quickly evaluated to obtain modified modulating compounds or ligands of improved specificity or activity.

Further experimental and computer modeling methods useful to identify modulating compounds based upon identification of the active sites of peptides and proteins of interest of

the current invention, and related factors involved in development, cellular differentiation, and other cellular processes will be apparent to those of skill in the art.

Examples of molecular modeling systems are the CHARM and QUANTA programs (Polygon Corporation, Waltham, MA). CHARM performs the energy minimization and molecular dynamics functions. QUANTA performs the construction, graphic modeling and analysis of molecular structure. QUANTA allows interactive construction, modification, visualization, and analysis of the behavior of molecules with each other.

A number of articles review computer modeling of drugs interactive with specific proteins, such as Rotivinen *et al.*, 1988, Acta Pharmaceutical Fennica 97:159-166; Ripka, New Scientist 54-57 (June 16, 1988); McKinaly and Rossmann, 1989, Annu. Rev. Pharmacol. Toxicol. 29:111-122; Perry and Davies, OSAR: Quantitative Structure-Activity Relationships in Drug Design pp. 189-193 (Alan R. Liss, Inc. 1989); Lewis and Dean, 1989, Proc. R. Soc. Lond. 236:125-140 and 141-162; and, with respect to a model receptor for nucleic acid components, Askew *et al.*, 1989, J. Am. Chem. Soc. 111:1082-1090. Other computer programs that screen and graphically depict chemicals are available from companies such as BioDesign, Inc. (Pasadena, CA.), Allelix, Inc. (Mississauga, Ontario, Canada), and Hypercube, Inc. (Cambridge, Ontario). Although these are primarily designed for application to drugs specific to particular proteins, they can be adapted to the design of drugs specific to regions of DNA or RNA, once that region is identified.

Although described above with reference to design and generation of compounds which could alter binding, one could also screen libraries of known compounds, including natural products or synthetic chemicals, and biologically active materials, including proteins, for compounds which are inhibitors or activators.

Compounds identified via assays such as those described herein may be useful, for example, in elaborating the biological function of the gene products of interest of the current invention and for ameliorating disorders affecting development and cell differentiation. Assays for testing the effectiveness of compounds, identified by, for example, techniques such as those described below.

5.6.1. IN VITRO SCREENING ASSAYS FOR COMPOUNDS THAT BIND TO PEPTIDES AND PROTEINS OF THE CURRENT INVENTION

In vitro systems may be designed to identify compounds capable of interacting with (e.g., binding to) peptides and proteins of interest of the current invention, fragments thereof, and variants thereof. The identified compounds can be useful, for example, in modulating the activity of wild type and/or mutant gene products of the current invention; may be utilized in screens for identifying compounds that disrupt normal interactions of the peptides and proteins of the current invention with other factors, like, for example, other peptides and proteins; or may in themselves disrupt such interactions.

The principle of the assays used to identify compounds that bind to the peptides and proteins of the current invention involves preparing a reaction mixture of the peptides and proteins of interest that are disclosed by the current invention and a test compound under conditions and for a time sufficient to allow the two components to interact and bind, thus forming a complex that can be removed from and/or detected in the reaction mixture. The peptides and proteins of the current invention used can vary depending upon the goal of the screening assay. For example, where agonists of the natural ligand are sought, the full length peptide or protein of interest, or a fusion protein containing the subunit of interest fused to a protein or polypeptide that affords advantages in the assay system (e.g., labeling, isolation of the resulting complex, etc.) can be utilized.

The screening assays can be conducted in a variety of ways. For example, one method of conducting such an assay involves anchoring the peptide or protein of interest, or a fragment or fusion protein thereof, or the test substance onto a solid phase and detecting peptide or protein of interest/test compound complexes anchored on the solid phase at the end of the reaction. In one embodiment of such a method, the peptide or protein of interest may be anchored onto a solid surface, and the test compound, which is not anchored, may be labeled, either directly or indirectly. In another embodiment of the method, a peptide or protein of interest of the current invention anchored on the solid phase is complexed with a natural ligand of such peptide or protein of interest. Then, a test compound could be assayed for its ability to disrupt the association of the complex.

In practice, microtiter plates may conveniently be utilized as the solid phase. The anchored component may be immobilized by non-covalent or covalent attachments. Non-covalent attachment may be accomplished by simply coating the solid surface with a solution of the protein and drying. Alternatively, an immobilized antibody, preferably a monoclonal antibody, specific for the peptide or protein to be immobilized may be used to anchor the peptide or protein to the solid surface. The surfaces may be prepared in advance and stored.

In order to conduct the assay, the nonimmobilized component is added to the coated surface containing the anchored component. After the reaction is complete, unreacted components are removed (*e.g.*, by washing) under conditions such that any complexes formed will remain immobilized on the solid surface. The detection of complexes anchored on the solid surface can be accomplished in a number of ways. Where the previously nonimmobilized component is pre-labeled, the detection of label immobilized on the surface indicates that complexes were formed. Where the previously nonimmobilized component is not pre-labeled, an indirect label can be used to detect complexes anchored on the surface; *e.g.*, using a labeled antibody specific for the previously nonimmobilized component (the antibody, in turn, may be directly labeled or indirectly labeled with a labeled anti-Ig antibody).

Alternatively, a reaction can be conducted in a liquid phase, the reaction products separated from unreacted components, and complexes detected; *e.g.*, using an immobilized antibody specific for one component of complexes formed, like, for example, the peptide or protein of interest of the current invention or the test compound to anchor any complexes formed in solution, and a labeled antibody specific for the other component of the possible complex to detect anchored complexes.

5.6.2 ASSAYS FOR INTRACELLULAR PROTEINS THAT INTERACT WITH THE PEPTIDES AND PROTEINS OF THE CURRENT INVENTION

Any method suitable for detecting protein-protein interactions may be employed for identifying intracellular peptides and proteins that interact with peptides and proteins of the current invention. Among the traditional methods which may be employed are co-immunoprecipitation, crosslinking and co-purification through gradients or

chromatographic columns of cell lysates or proteins obtained from cell lysates and the peptides and proteins of the current invention to identify proteins in the lysate that interact with those peptides and proteins of the current invention. For these assays, the peptides and proteins of the current invention may be used in full length, or in truncated or modified forms or as fusion-proteins. Similarly, the component may be a complex of two or more of the peptides and proteins of the current invention. Once isolated, such an intracellular protein can be identified and can, in turn, be used in conjunction with standard techniques to identify proteins with which it interacts. For example, at least a portion of the amino acid sequence of an intracellular protein which interacts with a peptide or protein of the current invention, can be ascertained using techniques well known to those of skill in the art, such as via the Edman degradation technique. (See, *e.g.*, Creighton, 1983, "Proteins: Structures and Molecular Principles", W.H. Freeman & Co., N.Y., pp.34-49). The amino acid sequence obtained may be used as a guide for the generation of oligonucleotide mixtures that can be used to screen for gene sequences encoding such intracellular proteins. Screening may be accomplished, for example, by standard hybridization or PCR techniques. Techniques for the generation of oligonucleotide mixtures and the screening are well-known. (See, *e.g.*, Ausubel, supra., and PCR Protocols: A Guide to Methods and Applications, 1990, Innis, M. *et al.*, eds. Academic Press, Inc., New York).

Additionally, methods may be employed which result in the simultaneous identification of genes which encode the intracellular proteins interacting with peptides and proteins of the current invention. These methods include, for example, probing expression libraries, in a manner similar to the well known technique of antibody probing of λ gt11 libraries, using a labeled form of a peptide or protein of the current invention, or a fusion protein, *e.g.*, a peptide or protein at least partially encoded by a GTS of the present invention fused to a marker (*e.g.*, an enzyme, fluor, luminescent protein, or dye), or an Ig-Fc domain.

One method that detects protein interactions *in vivo*, the two-hybrid system, is described in detail for illustration only and not by way of limitation. One version of this system has been described (Chien *et al.*, 1991, Proc. Natl. Acad. Sci. USA, 88:9578-9582) and is commercially available from Clontech (Palo Alto, CA).

5 Briefly, utilizing such a system, plasmids are constructed that encode two hybrid proteins: one plasmid consists of nucleotides encoding the DNA-binding domain of a transcription activator protein fused to a nucleotide sequence of the current invention encoding a peptide or protein of the current invention, a modified or truncated form or a fusion protein, and the other plasmid consists of nucleotides encoding the transcription
10 activator protein's activation domain fused to a cDNA encoding an unknown protein which has been recombined into this plasmid as part of a cDNA library. The DNA-binding domain fusion plasmid and the cDNA library are transformed into a strain of the yeast *Saccharomyces cerevisiae* that contains a reporter gene (*e.g.*, HBS or *lacZ*) whose regulatory
15 region contains the transcription activator's binding site. Either hybrid protein alone cannot activate transcription of the reporter gene; the DNA-binding domain hybrid cannot because it does not provide activation function, and the activation domain hybrid cannot because it cannot localize to the activator's binding sites. Interaction of the two hybrid proteins reconstitutes the functional activator protein and results in expression of the reporter gene, which is detected by an assay for the reporter gene product.

20 The two-hybrid system or related methodology may be used to screen activation domain libraries for proteins that interact with the "bait" gene product. By way of example, and not by way of limitation, a peptide or protein of the current invention may be used as the bait gene product. Total genomic or cDNA sequences are fused to the DNA encoding an activation domain. This library and a plasmid encoding a hybrid of a bait gene product of the current invention fused to the DNA-binding domain are cotransformed into a yeast reporter strain, and the resulting transformants are screened for those that express the reporter gene. For example, and not by way of limitation, a bait gene sequence of the current invention can be cloned into a vector such that it is translationally fused to the DNA encoding the DNA-
25 binding domain of the GAL4 protein. These colonies are purified and the library plasmids responsible for reporter gene expression are isolated. DNA sequencing is then used to identify the proteins encoded by the library plasmids.

30 A cDNA library of the cell line from which proteins that interact with bait gene product of the current invention are to be detected can be made using methods routinely practiced in the art. According to the particular system described herein, for example, the

cDNA fragments can be inserted into a vector such that they are translationally fused to the transcriptional activation domain of GAL4. This library can be co-transfected along with the bait gene-GAL4 fusion plasmid into a yeast strain which contains a lacZ gene driven by a promoter which contains GAL4 activation sequence. A cDNA encoded protein, fused to GAL4 transcriptional activation domain, that interacts with bait gene product will reconstitute an active GAL4 protein and thereby drive expression of the HIS3 gene. Colonies which express HIS3 can be detected by their growth on petri dishes containing semi-solid agar based media lacking histidine. The cDNA can then be purified from these strains, and used to produce and isolate the bait gene-interacting protein using techniques routinely practiced in the art.

5.6.3 ASSAYS FOR COMPOUNDS THAT INTERFERE WITH INTERACTIONS OF THE PEPTIDES AND PROTEINS OF THE CURRENT INVENTION WITH INTRACELLULAR MACROMOLECULES

The macromolecules that interact with the peptides and proteins of the current invention are referred to, for purposes of this discussion, as "binding partners". These binding partners are likely to be involved in catalytic reactions or signal transduction pathways, and therefore, in the role of the peptides and proteins of the current invention in development and cell differentiation. It is also desirable to identify compounds that interfere with or disrupt the interaction of such binding partners with the peptides and proteins of the current invention which may be useful in regulating the activity of the peptides and proteins of the current invention and thus control development and cell differentiation disorders associated with the activity of the peptides and proteins of the current invention.

The basic principle of the assay systems used to identify compounds that interfere with the interaction between the peptides and proteins of the current invention and its binding partner or partners involves preparing a reaction mixture containing the peptides or proteins of the current invention of interest, modified or truncated version thereof, or fusion proteins thereof as described above, and the binding partner under conditions and for a time sufficient to allow the two to interact and bind, thus forming a complex. In order to test a compound for inhibitory activity, the reaction mixture is prepared in the presence and absence of the test

compound. The test compound may be initially included in the reaction mixture, or may be added at a time subsequent to the addition of the peptide or protein of the current invention and its binding partner. Control reaction mixtures are incubated without the test compound or with a placebo. The formation of any complexes between the peptide or protein of the
5 current invention and the binding partner is then detected. The formation of a complex in the control reaction, but not in the reaction mixture containing the test compound, indicates that the compound interferes with the interaction of the peptide or protein at least partially encoded by a GTS of the present invention and the interactive binding partner. Additionally, complex formation within reaction mixtures containing the test compound and normal
10 peptide or protein of the current invention may also be compared to complex formation within reaction mixtures containing the test compound and a mutant peptide or protein of the current invention. This comparison can be important in those cases wherein it is desirable to identify compounds that disrupt interactions of mutant but not normal forms of a peptide or protein of the current invention.

15 The assay for compounds that interfere with the interaction of a peptide or protein of the current invention and binding partners can be conducted in a heterogeneous or homogeneous format. Heterogeneous assays involve anchoring either the peptide or protein of the current invention or the binding partner onto a solid phase and detecting complexes anchored on the solid phase at the end of the reaction. In homogeneous assays, the entire
20 reaction is carried out in a liquid phase. In either approach, the order of addition of reactants can be varied to obtain different information about the compounds being tested. For example, test compounds that interfere with the interaction by competition can be identified by conducting the reaction in the presence of the test substance; *i.e.*, by adding the test substance to the reaction mixture prior to or simultaneously with the peptide or protein of the
25 current invention and interactive binding partner. Alternatively, test compounds that disrupt preformed complexes, *e.g.* compounds with higher binding constants that displace one of the components from the complex, can be tested by adding the test compound to the reaction mixture after complexes have been formed. The various formats are described briefly below.

30 In a heterogeneous assay system, either the peptide or protein of the current invention or the interactive binding partner, is anchored onto a solid surface, while the non-anchored

species is labeled either directly or indirectly. In practice, microtiter plates are conveniently utilized. The anchored species may be immobilized by non-covalent or covalent attachments. Non-covalent attachment may be accomplished simply by coating the solid surface with a solution of the peptide or protein of the current invention or binding partner and drying.

- 5 Alternatively, an immobilized antibody specific for the species to be anchored may be used to anchor the species to the solid surface. The surfaces may be prepared in advance and stored.

In order to conduct the assay, the partner of the immobilized species is exposed to the coated surface with or without the test compound. After the reaction is complete, unreacted components are removed (*e.g.*, by washing) and any complexes formed will remain

- 10 immobilized on the solid surface. The detection of complexes anchored on the solid surface can be accomplished in a number of ways. Where the non-immobilized species is pre-labeled, the detection of label immobilized on the surface indicates that complexes were formed. Where the non-immobilized species is not pre-labeled, an indirect label can be used to detect complexes anchored on the surface; *e.g.*, using a labeled antibody specific for the
- 15 initially non-immobilized species (the antibody, in turn, may be directly labeled or indirectly labeled with a labeled anti-Ig antibody). Depending upon the order of addition of reaction components, test compounds which inhibit complex formation or which disrupt preformed complexes can be detected.

- Alternatively, the reaction can be conducted in a liquid phase in the presence or
- 20 absence of the test compound, the reaction products separated from unreacted components, and complexes detected; *e.g.*, using an immobilized antibody specific for one of the binding components to anchor any complexes formed in solution, and a labeled antibody specific for the other partner to detect anchored complexes. Again, depending upon the order of addition of reactants to the liquid phase, test compounds which inhibit complex or which disrupt
- 25 preformed complexes can be identified.

- In an alternate embodiment of the invention, a homogeneous assay can be used. In this approach, a preformed complex of the peptide or protein of the current invention and the interactive binding partner is prepared in which either the peptide or protein of the current invention or its binding partner is labeled, but the signal generated by the label is quenched
- 30 due to formation of the complex (see, *e.g.*, U.S. Patent No. 4,109,496 by Rubenstein which

utilizes this approach for immunoassays). The addition of a test substance that competes with and displaces one of the species from the preformed complex will result in the generation of a signal above background. In this way, test substances which disrupt peptide or protein of the current invention/intracellular binding partner interaction can be identified.

5 In a particular embodiment, a peptide or protein of the current invention can be prepared for immobilization. For example, the peptide or protein of the current invention or a fragment thereof can be fused to a glutathione-S-transferase (GST) gene using a fusion vector, such as pGEX-5X-1, in such a manner that its binding activity is maintained in the resulting fusion protein. The interactive binding partner can be purified and used to raise a
10 monoclonal antibody, using methods routinely practiced in the art and described above. This antibody can be labeled with the radioactive isotope ^{125}I , for example, by methods routinely practiced in the art. In a heterogeneous assay, *e.g.*, the GST-peptide or protein of the current invention fusion protein can be anchored to glutathione-agarose beads. The interactive binding partner can then be added in the presence or absence of the test compound in a
15 manner that allows interaction and binding to occur. At the end of the reaction period, unbound material can be washed away, and the labeled monoclonal antibody can be added to the system and allowed to bind to the complexed components. The interaction between the peptide or protein of the current invention and the interactive binding partner can be detected by measuring the amount of radioactivity that remains associated with the glutathione-
20 agarose beads. A successful inhibition of the interaction by the test compound will result in a decrease in measured radioactivity.

Alternatively, the GST-peptide or protein of the current invention fusion protein and the interactive binding partner can be mixed together in liquid in the absence of the solid glutathione-agarose beads. The test compound can be added either during or after the species
25 are allowed to interact. This mixture can then be added to the glutathione-agarose beads and unbound material is washed away. Again the extent of inhibition of the peptide or protein of the current invention/binding partner interaction can be detected by adding the labeled antibody and measuring the radioactivity associated with the beads.

In another embodiment of the invention, these same techniques can be employed
30 using peptide fragments that correspond to the binding domains of a peptide or protein of the

current invention and/or the interactive or binding partner (in cases where the binding partner is a protein) in place of one or both of the full length proteins. Any number of methods routinely practiced in the art can be used to identify and isolate the binding sites. These methods include, but are not limited to, mutagenesis of the gene encoding one of the proteins and screening for disruption of binding in a co-immunoprecipitation assay. Compensating mutations in the gene encoding the second species in the complex can then be selected. Sequence analysis of the genes encoding the respective proteins will reveal the mutations that correspond to the region of the protein involved in interactive binding. Alternatively, one protein can be anchored to a solid surface using methods described above, and allowed to interact with and bind to its labeled binding partner, which has been treated with a proteolytic enzyme, such as trypsin. After washing, a short, labeled peptide comprising the binding domain may remain associated with the solid material, which can be isolated and identified by amino acid sequencing. Also, once the gene coding for the intracellular binding partner is obtained, short gene segments can be engineered to express peptide fragments of the protein, which can then be tested for binding activity and purified or synthesized.

For example, and not by way of limitation, a peptide or protein of the current invention can be anchored to a solid material as described, above, by making a GST-peptide or protein of the current invention fusion protein and allowing it to bind to glutathione agarose beads. The interactive binding partner can be labeled with a radioactive isotope, such as ^{35}S , and cleaved with a proteolytic enzyme such as trypsin. Cleavage products can then be added to the anchored GST-peptide or protein of the current invention fusion protein and allowed to bind. After washing away unbound peptides, labeled bound material, representing the intracellular binding partner binding domain, can be eluted, purified, and analyzed for amino acid sequence by well-known methods. Peptides so identified can be produced synthetically or fused to appropriate facilitative proteins using recombinant DNA technology.

5.6.4 ASSAYS FOR IDENTIFICATION OF COMPOUNDS THAT AMELIORATE DISORDERS AFFECTING DEVELOPMENT AND CELL DIFFERENTIATION

Compounds including, but not limited to, binding compounds identified via assay techniques such as those described above, can be tested for the ability to ameliorate

development and cell differentiation disorder symptoms. The assays described above can identify compounds which affect the activity of peptides and proteins of the current invention (*e.g.*, compounds that bind to the peptides and proteins of the current invention, inhibit binding of their natural ligands, and compounds that bind to a natural ligand of the peptides and proteins of the current invention and neutralize the ligand activity); or compounds that affect the activity of genes encoding peptides and proteins of the current invention (by affecting the expression of those genes, including molecules, *e.g.*, proteins or small organic molecules, that affect or interfere with splicing events so that expression of the genes of interest can be modulated). However, it should be noted that the assays described herein can also identify compounds that modulate signal transduction or catalytic events that the peptides and proteins of the current invention are involved in. The identification and use of such compounds which affect a step in, for example, signal transduction pathways or catalytic events in which any of the peptides and proteins of the current invention are involved in, may modulate the effect of the peptides and proteins of the current invention on developmental or cell differentiation disorders. Such identification and use of such compounds are within the scope of the invention. Such compounds can be used as part of a therapeutic method for the treatment of developmental and cell differentiation disorders.

The invention encompasses cell-based and animal model-based assays for the identification of compounds exhibiting such an ability to ameliorate developmental and cell differentiation disorder symptoms. Such cell-based assay systems can also be used as the standard to assay for purity and potency of the natural ligand, catalytic subunit, including recombinantly or synthetically produced catalytic subunit and catalytic subunit mutants.

Cell-based systems can be used to identify compounds which may act to ameliorate developmental or cell differentiation disorder symptoms. Such cell systems can include, for example, recombinant or non-recombinant cells, such as cell lines, which express the gene encoding the peptide or protein of interest of the current invention. For example ES cells, or cell lines derived from ES cells can be used. In addition, expression host cells (*e.g.*, COS cells, CHO cells, fibroblasts, Sf9 cells) genetically engineered to express a functional peptide or protein of the current invention in addition to factors necessary for the peptide or protein of

the current invention to fulfil its physiological role of, for example, signal transduction or catalyses, can be used as an end point in the assay.

In utilizing such cell systems, cells may be exposed to a compound suspected of exhibiting an ability to ameliorate developmental or cell differentiation disorder symptoms, at a sufficient concentration and for a time sufficient to elicit such an amelioration of such disorder symptoms in the exposed cells. After exposure, the cells can be assayed to measure alterations in the expression of the gene encoding the peptide or protein of interest of the current invention, *e.g.*, by assaying cell lysates for the appropriate mRNA transcripts (*e.g.*, by Northern analysis) or for expression of the peptide or protein of interest of the current invention in the cell; compounds which regulate or modulate expression of the gene encoding the peptide or protein of interest of the current invention are valuable candidates as therapeutics. Alternatively, the cells are examined to determine whether one or more developmental or cell differentiation disorder-like cellular phenotypes has been altered to resemble a more normal or more wild type phenotype, or a phenotype more likely to produce a lower incidence or severity of disorder symptoms. Still further, the expression and/or activity of components of pathways or functionally or physiologically connected peptides or proteins of which the peptide or protein of interest of the current invention is a part, can be assayed.

For example, after exposure of the cells, cell lysates can be assayed for the presence of increased levels of the test compound as compared to lysates derived from unexposed control cells. The ability of a test compound to inhibit production of the assay compound such systems indicates that the test compound inhibits signal transduction initiated by the peptide or protein of interest of the current invention. Finally, a change in cellular morphology of intact cells may be assayed using techniques well known to those of skill in the art.

In addition, animal-based development or cell differentiation disorder systems, which may include, for example, mice, may be used to identify compounds capable of ameliorating development or cell differentiation disorder-like symptoms. Such animal models may be used as test systems for the identification of drugs, pharmaceuticals, therapies and interventions which may be effective in treating such disorders. For example, animal models may be exposed to a compound, suspected of exhibiting an ability to ameliorate development

or cell differentiation disorder symptoms, at a sufficient concentration and for a time sufficient to elicit such an amelioration of development and/or cell differentiation disorder symptoms in the exposed animals. The response of the animals to the exposure may be monitored by assessing the reversal of disorders associated with development and/or cell differentiation disorders. With regard to intervention, any treatments which reverse any aspect of development or cell differentiation disorder-like symptoms should be considered as candidates for human development and/or cell differentiation disorder therapeutic intervention. Dosages of test agents may be determined by deriving dose-response curves, as discussed below.

5.7 THE TREATMENT OF DISORDERS ASSOCIATED WITH STIMULATION OF PEPTIDES AND PROTEINS OF THE CURRENT INVENTION

The invention also encompasses methods and compositions for modifying development and cell differentiation and treating development and cell differentiation disorders. For example, one may decrease the level of expression of one or more genes of the current invention, and/or downregulate activity of one or more of the peptides or proteins of interest of the current invention. Thereby, the response of cells, like, for example, ES cells, to factors which activate the physiological responses that enhance the pathological processes leading to developmental and cell differentiation disorders may be reduced and the symptoms ameliorated. Conversely, the response of cells, like, for example, ES cells, to physiological stimuli involving any of the peptides or proteins of the current invention and necessary for proper developmental and cell differentiation processes may be augmented by increasing the activity of one or several of the peptides or proteins of interest of the current invention. Different approaches are discussed below.

5.7.1 INHIBITION OF PEPTIDES AND PROTEINS OF THE CURRENT INVENTION TO REDUCE DEVELOPMENT AND CELL DIFFERENTIATION DISORDERS

Any method which neutralizes the catalytic or signal transduction activity of the peptides and proteins of the current invention or which inhibits expression of the genes

encoding peptides and proteins (either transcription or translation) can be used to reduce symptoms associated with developmental and cell differentiation disorders.

In one embodiment, immuno therapy can be designed to reduce the level of endogenous gene expression for the peptides and proteins of the current invention, *e.g.*, using antisense or ribozyme approaches to inhibit or prevent translation of mRNA transcripts; triple helix approaches to inhibit transcription of the genes; or targeted homologous recombination to inactivate or "knock out" the genes or its endogenous promoter.

Antisense approaches involve the design of oligonucleotides (either DNA or RNA) that are complementary to mRNA specific for peptides and proteins of interest of the current invention. The antisense oligonucleotides will bind to the complementary mRNA transcripts and prevent translation. Absolute complementarity, although preferred, is not required. A sequence "complementary" to a portion of an RNA, as referred to herein, means a sequence having sufficient complementarity to be able to hybridize with the RNA, forming a stable duplex. In the case of double-stranded antisense nucleic acids, a single strand of the duplex DNA may thus be tested, or triplex formation may be assayed. The ability to hybridize will depend on both the degree of complementarity and the length of the antisense nucleic acid. Generally, the longer the hybridizing nucleic acid, the more base mismatches with an RNA it may contain and still form a stable duplex (or triplex, as the case may be). One skilled in the art can ascertain a tolerable degree of mismatch by use of standard procedures to determine the melting point of the hybridized complex.

Oligonucleotides that are complementary to the 5' end of the message, *e.g.*, the 5' untranslated sequence up to and including the AUG initiation codon, should work most efficiently at inhibiting translation. However, sequences complementary to the 3' untranslated sequences of mRNAs have recently shown to be effective at inhibiting translation of mRNAs as well. See generally, Wagner, R., 1994, *Nature* 372:333-335. Thus, oligonucleotides complementary to either the 5'- or 3'- non- translated, non-coding regions of the mRNAs specific for the peptides and proteins of the current invention could be used in an antisense approach to inhibit translation of those endogenous mRNAs. Oligonucleotides complementary to the 5' untranslated region of the mRNA should include the complement of the AUG start codon. Antisense oligonucleotides complementary to mRNA coding regions

are less efficient inhibitors of translation but could be used in accordance with the invention. Whether designed to hybridize to the 5'-, 3'- or coding region of an mRNA, antisense nucleic acids should be at least six nucleotides in length, and are preferably oligonucleotides ranging from 6 to about 50 nucleotides in length. In specific aspects the oligonucleotide is at least 10
5 nucleotides, at least 17 nucleotides, at least 25 nucleotides or at least 50 nucleotides.

Regardless of the choice of target sequence, it is preferred that *in vitro* studies are first performed to quantitate the ability of the antisense oligonucleotide to inhibit gene expression. It is preferred that these studies utilize controls that distinguish between antisense gene inhibition and nonspecific biological effects of oligonucleotides. It is also preferred that these
10 studies compare levels of the target RNA or protein with that of an internal control RNA or protein. Additionally, it is envisioned that results obtained using the antisense oligonucleotide are compared with those obtained using a control oligonucleotide. It is preferred that the control oligonucleotide is of approximately the same length as the test oligonucleotide and that the nucleotide sequence of the oligonucleotide differs from the
15 antisense sequence no more than is necessary to prevent specific hybridization to the target sequence.

The oligonucleotides can be DNA or RNA or chimeric mixtures or derivatives or modified versions thereof, single-stranded or double-stranded. The oligonucleotide can be modified at the base moiety, sugar moiety, or phosphate backbone, for example, to improve
20 stability of the molecule, hybridization, etc. The oligonucleotide may include other appended groups such as peptides (*e.g.*, for targeting host cell receptors *in vivo*), or agents facilitating transport across the cell membrane (see, *e.g.*, Letsinger *et al.*, 1989, Proc. Natl. Acad. Sci. U.S.A. 86:6553-6556; Lemaitre *et al.*, 1987, Proc. Natl. Acad. Sci. 84:648-652; PCT Publication No. WO88/09810, published December 15, 1988), or hybridization-triggered
25 cleavage agents. (See, *e.g.*, Krol *et al.*, 1988, BioTechniques 6:958-976) or intercalating agents. (See, *e.g.*, Zon, 1988, Pharm. Res. 5:539-549). To this end, the oligonucleotide may be conjugated to another molecule, *e.g.*, a peptide, hybridization triggered cross-linking agent, transport agent, hybridization-triggered cleavage agent, etc.

The antisense oligonucleotide may comprise at least one modified base moiety which
30 is selected from the group including, but not limited to, 5-fluorouracil, 5-bromouracil,

- 5-chlorouracil, 5-iodouracil, hypoxanthine, xantine, 4-acetylcytosine,
5-(carboxyhydroxymethyl) uracil, 5-carboxymethylaminomethyl-2-thiouridine,
5-carboxymethylaminomethyluracil, dihydrouracil, beta-D-galactosylqueosine, inosine,
N6-isopentenyladenine, 1-methylguanine, 1-methylinosine, 2,2-dimethylguanine,
5 2-methyladenine, 2-methylguanine, 3-methylcytosine, 5-methylcytosine, N6-adenine,
7-methylguanine, 5-methylaminomethyluracil, 5-methoxyaminomethyl-2-thiouracil, beta-
D-mannosylqueosine, 5'-methoxycarboxymethyluracil, 5-methoxyuracil, 2-methylthio-N6-
isopentenyladenine, uracil-5-oxyacetic acid (v), wybutoxosine, pseudouracil, queosine,
2-thiocytosine, 5-methyl-2-thiouracil, 2-thiouracil, 4-thiouracil, 5-methyluracil, uracil-
10 5-oxyacetic acid methylester, uracil-5-oxyacetic acid (v), 5-methyl-2-thiouracil, 3-(3-amino-
3-N-2-carboxypropyl) uracil, (acp3)w, and 2,6-diaminopurine.

The antisense oligonucleotide may also comprise at least one modified sugar moiety selected from the group including, but not limited to, arabinose, 2-fluoroarabinose, xylulose, and hexose.

- 15 In another embodiment, the antisense oligonucleotide comprises at least one modified phosphate backbone selected from the group consisting of a phosphorothioate, a phosphorodithioate, a phosphoramidothioate, a phosphoramidate, a phosphordiamidate, a methylphosphonate, an alkyl phosphotriester, and a formacetal or analog thereof.

- 20 In yet another embodiment, the antisense oligonucleotide is an alpha-anomeric oligonucleotide. An alpha-anomeric oligonucleotide forms specific double-stranded hybrids with complementary RNA in which, contrary to the usual alpha-units, the strands run parallel to each other (Gautier *et al.*, 1987, Nucl. Acids Res. 15:6625-6641). The oligonucleotide is a 2'-O-methylribonucleotide (Inoue *et al.*, 1987, Nucl. Acids Res. 15:6131-6148), or a chimeric RNA-DNA analogue (Inoue *et al.*, 1987, FEBS Lett. 215:327-330).

- 25 Oligonucleotides of the invention may be synthesized by standard methods known in the art, *e.g.* by use of an automated DNA synthesizer (such as are commercially available from Biosearch, Applied Biosystems, etc.). As examples, phosphorothioate oligonucleotides may be synthesized by the method of Stein *et al.*, 1988, Nucl. Acids Res. 16:3209.

- Methylphosphonate oligonucleotides can be prepared by use of controlled pore glass polymer
30 supports (Sarin *et al.*, 1988, Proc. Natl. Acad. Sci. U.S.A. 85:7448-7451).

While antisense nucleotides complementary to the coding region sequence specific for the peptides and proteins of the current invention could be used, those complementary to the transcribed untranslated region are most preferred.

The antisense molecules should be delivered to cells which express the peptides and proteins of interest of the current invention *in vivo*, like, for example, ES cells. A number of methods have been developed for delivering antisense DNA or RNA to cells; *e.g.*, antisense molecules can be injected directly into the tissue or cell derivation site, or modified antisense molecules, designed to target the desired cells (*e.g.*, antisense linked to peptides or antibodies that specifically bind receptors or antigens expressed on the target cell surface) can be administered systemically.

However, it is often difficult to achieve intracellular concentrations of antisense molecules that are sufficient to suppress translation of endogenous mRNAs. Therefore a preferred approach utilizes a recombinant DNA construct in which the antisense oligonucleotide is placed under the control of a strong pol III or pol II promoter. The use of such a construct to transfect target cells in the patient will result in the transcription of sufficient amounts of single stranded RNAs that will form complementary base pairs with the endogenous transcripts specific for the peptides and proteins of interest of the current invention and thereby prevent translation of the respective mRNAs. For example, a vector can be introduced *in vivo* such that it is taken up by a cell and directs the transcription of an antisense RNA. Such a vector can remain episomal or become chromosomally integrated, as long as it can be transcribed to produce the desired antisense RNA. Such vectors can be constructed by recombinant DNA technology methods standard in the art. Vectors can be plasmid, viral, or others known in the art, used for replication and expression in mammalian cells. Expression of the sequence encoding the antisense RNA can be by any promoter known in the art to act in mammalian, preferably human cells. Such promoters can be inducible or constitutive. Such promoters include, but are not limited to: the SV40 early promoter region (Bernoist and Chambon, 1981, Nature 290:304-310), the promoter contained in the 3' long terminal repeat of Rous sarcoma virus (Yamamoto *et al.*, 1980, Cell 22:787-797), the herpes thymidine kinase promoter (Wagner *et al.*, 1981, Proc. Natl. Acad. Sci. U.S.A. 78:1441-1445), the regulatory sequences of the metallothionein gene (Brinster *et al.*,

1982, Nature 296:39-42), etc. Any type of plasmid, cosmid, YAC or viral vector can be used to prepare the recombinant DNA construct which can be introduced directly into the tissue or cell derivation site; *e.g.*, the bone marrow. Alternatively, viral vectors can be used which selectively infect the desired tissue or cell type; (*e.g.*, viruses which infect cells of

5 hematopoietic lineage), in which case administration may be accomplished by another route (*e.g.*, systemically).

Ribozyme molecules designed to catalytically cleave mRNA transcripts specific for the peptides and proteins of interest of the current invention can also be used to prevent translation of the mRNAs of interest and expression of the peptides and proteins encoded by those mRNAs. (See, *e.g.*, PCT International Publication WO90/11364, published October 4, 10 1990; Sarver *et al.*, 1990, Science 247:1222-1225). While ribozymes that cleave mRNA at site specific recognition sequences can be used to destroy mRNAs, the use of hammerhead ribozymes is preferred. Hammerhead ribozymes cleave mRNAs at locations dictated by flanking regions that form complementary base pairs with the target mRNA. The sole 15 requirement is that the target mRNA have the following sequence of two bases: 5'-UG-3'. The construction and production of hammerhead ribozymes is well known in the art and is described more fully in Haseloff and Gerlach, 1988, Nature, 334:585-591. Preferably the ribozyme is engineered so that the cleavage recognition site is located near the 5' end of the mRNA of interest; *i.e.*, to increase efficiency and minimize the intracellular accumulation of 20 non-functional mRNA transcripts.

The ribozymes of the present invention also include RNA endoribonucleases (hereinafter "Cech-type ribozymes") such as the one which occurs naturally in Tetrahymena Thermophila (known as the IVS, or L-19 IVS RNA) and which has been extensively described by Thomas Cech and collaborators (Zaug *et al.*, 1984, Science, 224:574-578; Zaug 25 and Cech, 1986, Science, 231:470-475; Zaug *et al.*, 1986, Nature, 324:429-433; published International Patent Application No. WO 88/04300 by University Patents Inc.; Been and Cech, 1986, Cell, 47:207-216). The Cech-type ribozymes have an eight base pair active site which hybridizes to a target RNA sequence where after cleavage of the target RNA takes place. The invention encompasses those Cech-type ribozymes which target eight base-pair

active site sequences that are present in the mRNAs specific for the peptides and proteins of interest of the current invention.

As in the antisense approach, the ribozymes can be composed of modified oligonucleotides (*e.g.* for improved stability, targeting, etc.) and should be delivered to cells which express the peptides and proteins of interest of the current invention *in vivo*, like, for example, ES cells. A preferred method of delivery involves using a DNA construct "encoding" the ribozyme under the control of a strong constitutive pol III or pol II promoter, so that transfected cells will produce sufficient quantities of the ribozyme to destroy the endogenous messages specific for the peptides and proteins of interest of the current invention and inhibit translation. Because ribozymes unlike antisense molecules, are catalytic, a lower intracellular concentration is required for efficiency.

Endogenous gene expression can also be reduced by inactivating or "knocking out" the gene of interest specific for a peptide or protein of the current invention or its promoter using targeted homologous recombination. (*e.g.*, see Smithies *et al.*, 1985, *Nature* 317:230-234; Thomas & Capecchi, 1987, *Cell* 51:503-512; Thompson *et al.*, 1989 *Cell* 5:313-321; each of which is incorporated by reference herein in its entirety). For example, a mutant, non-functional peptide or protein of interest of the current invention (or a completely unrelated DNA sequence) flanked by DNA homologous to the endogenous gene encoding said peptide or protein of interest of the current invention (either the coding regions or regulatory regions of the gene) can be used, with or without a selectable marker and/or a negative selectable marker, to transfect cells that express said peptide or protein of interest of the current invention *in vivo*. Insertion of the DNA construct, via targeted homologous recombination, results in inactivation of the targeted endogenous gene. Such approaches are particularly suited in the agricultural field where modifications to ES cells can be used to generate animal offspring with an inactive copy of a gene encoding a peptide or protein of interest of the current invention (*e.g.*, see Thomas & Capecchi 1987 and Thompson 1989, *supra*). However this approach can be adapted for use in humans provided the recombinant DNA constructs are directly administered or targeted to the required site *in vivo* using appropriate viral vectors.

Alternatively, endogenous expression of a gene of interest can be reduced by targeting deoxyribonucleotide sequences complementary to the regulatory region of said gene (*i.e.*, the promoter and/or enhancers) to form triple helical structures that prevent transcription of the gene of interest in target cells in the body. (See generally, Helene, C. 1991, *Anticancer Drug Des.*, 6(6):569-84; Helene, C. *et al.*, 1992, *Ann. N.Y. Acad. Sci.*, 660:27-36; and Maher, L.J., 1992, *Bioassays* 14(12):807-15).

In yet another embodiment of the invention, the activity of a peptide or protein of interest of the current invention can be reduced using a "dominant negative" approach. A dominant negative approach takes advantage of the interaction of the peptides or proteins of interest with other peptides or proteins to form complexes, the formation of which is a prerequisite for the peptide or protein of interest of the current invention to exert its physiological activity. To this end, constructs which encode a defective form of the peptide or protein of interest of the current invention can be used in gene therapy approaches to diminish the activity of said peptide or protein of interest in appropriate target cells.

Alternatively, targeted homologous recombination can be utilized to introduce such deletions or mutations into the subject's endogenous gene encoding the peptide or protein of interest of the current invention in the appropriate tissue. The engineered cells will express non-functional copies of the peptide or protein of interest of the current invention, thereby downregulating its activity *in vivo*. Such engineered cells should demonstrate a diminished response to physiological stimuli of the activity of the affected peptide or protein of interest of the current invention, resulting in reduction of the development or cell differentiation disorder phenotype.

5.7.2 RESTORATION OR INCREASE IN EXPRESSION OR ACTIVITY OF A PEPTIDE OR PROTEIN OF THE CURRENT INVENTION TO PROMOTE DEVELOPMENT OR CELL DIFFERENTIATION

With respect to an increase in the level of normal gene expression and/or gene product activity specific for any of the peptides and proteins of interest of the current invention, the respective nucleic acid sequences can be utilized for the treatment of development and cell differentiation disorders. Where the cause of the development or cell differentiation

5 dysfunction is a defective peptide or protein of the current invention, treatment can be administered, for example, in the form of gene delivery or gene therapy. Specifically, one or more copies of a normal gene or a portion of the gene that directs the production of a gene product exhibiting normal function of the appropriate peptide or protein of the current invention, may be inserted into the appropriate cells within a patient or animal subject, optionally using suitable vectors. Recombinant retroviruses have been widely used in gene transfer or gene delivery experiments and even human clinical trials (see generally, Mulligan, R.C., Chapter 8, In: Experimental Manipulation of Gene Expression, Academic Press, pp. 155-173 (1983); Coffin, J., In: RNA Tumor Viruses, Weiss, R. *et al.* (eds.), Cold Spring Harbor Laboratory, Vol. 2, pp. 36-38 (1985). Other eucaryotic viruses which have been used as vectors to transduce mammalian cells include adenovirus, papilloma virus, herpes virus, adeno-associated virus, vaccinia virus, rabies virus, and the like (See generally, Sambrook *et al.*, Molecular Cloning, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, Vol. 3:16.1-16.89 (1989). Alternatively, cationic or other lipids may be employed to deliver polynucleotides comprising (or including) the described GTS sequences to patients. Additionally, naked DNA comprising one or more GTS sequences, optionally modified by the addition of one or more of, in operable combination and orientation, a promoter, an enhancer, a ribosome entry or ribosome binding site, and/or an in-frame translation initiation codon can be employed to deliver GTSs to a patient. Another use of the above constructs includes "naked" DNA vaccines that can be introduced *in vivo* alone, or in conjunction with excipients, or microcarrier spheres, nanoparticles or other supporting or dosaging compounds or molecules.

25 The gene replacement/delivery therapies described above should be capable of delivering gene sequences to the cell types within patients which express the peptide or protein of interest of the current invention. Alternatively, targeted homologous recombination can be utilized to correct the defective endogenous gene in the appropriate cell type. In animals, targeted homologous recombination can be used to correct the defect in ES cells in order to generate offspring with a corrected trait.

30 Finally, compounds identified in the assays described above that stimulate, enhance, or modify the activity of the peptides and proteins of the current invention can be used to

achieve proper development and cell differentiation. The formulation and mode of administration will depend upon the physico-chemical properties of the compound.

5.8 PHARMACEUTICAL PREPARATIONS AND METHODS OF ADMINISTRATION

Compounds that are determined to affect gene expression of the peptides and proteins of the current invention, comprise nucleotide sequence information that is at least partially first disclosed in the Sequence Listing (*i.e.*, sequences used in antisense, gene therapy, dsRNA, or ribozyme applications), or the interaction of such peptides and proteins with any of their binding partners, can be administered to a patient at therapeutically effective doses to treat or ameliorate development and cell differentiation disorders. A therapeutically effective dose refers to that amount of the compound sufficient to result in any amelioration or retardation of disease symptoms, or development and cell differentiation or proliferation disorders.

5.8.1 EFFECTIVE DOSE

Toxicity and therapeutic efficacy of such compounds can be determined by standard pharmaceutical procedures in cell cultures or experimental animals, *e.g.*, for determining the LD₅₀ (the dose lethal to 50% of the population) and the ED₅₀ (the dose therapeutically effective in 50% of the population). The dose ratio between toxic and therapeutic effects is the therapeutic index and it can be expressed as the ratio LD₅₀/ED₅₀. Compounds which exhibit large therapeutic indices are preferred. While compounds that exhibit toxic side effects may be used, care should be taken to design a delivery system that targets such compounds to the site of affected tissue in order to minimize potential damage to uninfected cells and, thereby, reduce side effects.

The data obtained from the cell culture assays and animal studies can be used in formulating a range of dosage for use in humans. The dosage of such compounds lies preferably within a range of circulating concentrations that include the ED₅₀ with little or no toxicity. The dosage may vary within this range depending upon the dosage form employed and the route of administration utilized. For any compound used in the method of the

invention, the therapeutically effective dose can be estimated initially from cell culture assays. A dose may be formulated in animal models to achieve a circulating plasma concentration range that includes the IC_{50} (*i.e.*, the concentration of the test compound which achieves a half-maximal inhibition of symptoms) as determined in cell culture. Such
5 information can be used to more accurately determine useful doses in humans. Levels in plasma may be measured, for example, by high performance liquid chromatography.

When the therapeutic treatment of disease is contemplated, the appropriate dosage may also be determined using animal studies to determine the maximal tolerable dose, or MTD, of a bioactive agent per kilogram weight of the test subject. In general, at least one
10 animal species tested is mammalian. Those skilled in the art regularly extrapolate doses for efficacy and avoiding toxicity to other species, including human. Before human studies of efficacy are undertaken, Phase I clinical studies in normal subjects help establish safe doses.

Additionally, the bioactive agent may be complexed with a variety of well established compounds or structures that, for instance, enhance the stability of the bioactive agent, or
15 otherwise enhance its pharmacological properties (e.g., increase *in vivo* half-life, reduce toxicity, etc.).

The above therapeutic agents will be administered by any number of methods known to those of ordinary skill in the art including, but not limited to, administration by inhalation; by subcutaneous (sub-q), intravenous (I.V.), intraperitoneal (I.P.), intramuscular (I.M.), or
20 intrathecal injection; or as a topically applied agent (transderm, ointments, creams, salves, eye drops, and the like).

5.8.2 FORMULATIONS AND USE

Pharmaceutical compositions for use in accordance with the present invention may be
25 formulated in conventional manner using one or more physiologically acceptable carriers or excipients.

Thus, the compounds and their physiologically acceptable salts and solvates may be formulated for administration by inhalation or insufflation (either through the mouth or the nose) or oral, buccal, parenteral or rectal administration.

For oral administration, the pharmaceutical compositions may take the form of, for example, tablets or capsules prepared by conventional means with pharmaceutically acceptable excipients such as binding agents (*e.g.*, pregelatinised maize starch, polyvinylpyrrolidone or hydroxypropyl methylcellulose); fillers (*e.g.*, lactose, microcrystalline cellulose or calcium hydrogen phosphate); lubricants (*e.g.*, magnesium stearate, talc or silica); disintegrants (*e.g.*, potato starch or sodium starch glycolate); or wetting agents (*e.g.*, sodium lauryl sulphate). The tablets may be coated by methods well known in the art. Liquid preparations for oral administration may take the form of, for example, solutions, syrups or suspensions, or they may be presented as a dry product for constitution with water or other suitable vehicle before use. Such liquid preparations may be prepared by conventional means with pharmaceutically acceptable additives such as suspending agents (*e.g.*, sorbitol syrup, cellulose derivatives or hydrogenated edible fats); emulsifying agents (*e.g.*, lecithin or acacia); non-aqueous vehicles (*e.g.*, almond oil, oily esters, ethyl alcohol or fractionated vegetable oils); and preservatives (*e.g.*, methyl or propyl-p-hydroxybenzoates or sorbic acid). The preparations may also contain buffer salts, flavoring, coloring and sweetening agents as appropriate.

Preparations for oral administration may be suitably formulated to give controlled release of the active compound.

For buccal administration the compositions may take the form of tablets or lozenges formulated in conventional manner.

For administration by inhalation, the compounds for use according to the present invention are conveniently delivered in the form of an aerosol spray presentation from pressurized packs or a nebulizer, with the use of a suitable propellant, *e.g.*, dichlorodifluoromethane, trichlorofluoromethane, dichlorotetrafluoroethane, carbon dioxide or other suitable gas. In the case of a pressurized aerosol, the dosage unit may be determined by providing a valve to deliver a metered amount. Capsules and cartridges of *e.g.* gelatin for use in an inhaler or insufflator may be formulated containing a powder mix of the compound and a suitable powder base such as lactose or starch.

The compounds may be formulated for parenteral administration by injection, *e.g.*, by bolus injection or continuous infusion. Formulations for injection may be presented in unit

dosage form, *e.g.*, in ampules or in multi-dose containers, with an added preservative. The compositions

may take such forms as suspensions, solutions or emulsions in oily or aqueous vehicles, and may contain formulatory agents such as suspending, stabilizing and/or dispersing agents.

- 5 Alternatively, the active ingredient may be in powder form for constitution with a suitable vehicle, *e.g.*, sterile pyrogen-free water, before use.

The compounds may also be formulated as compositions for rectal administration such as suppositories or retention enemas, *e.g.*, containing conventional suppository bases such as cocoa butter or other glycerides.

- 10 In addition to the formulations described previously, the compounds may also be formulated as a depot preparation. Such long acting formulations may be administered by implantation (for example subcutaneously or intramuscularly) or by intramuscular injection. Thus, for example, the compounds may be formulated with suitable polymeric or
15 hydrophobic materials (for example as an emulsion in an acceptable oil) or ion exchange resins, or as sparingly soluble derivatives, for example, as a sparingly soluble salt. The compositions may, if desired, be presented in a pack or dispenser device which may contain one or more unit dosage forms containing the active ingredient. The pack may, for example, comprise metal or plastic foil, such as a blister pack. The pack or dispenser device may be accompanied by instructions for administration.

- 20 The examples below are provided to illustrate the subject invention. These examples are provided by way of illustration and are not included for the purpose of limiting the invention in any way whatsoever.

6. EXAMPLES

25

6.1 CONSTRUCTION OF TRAPPED cDNA LIBRARIES

- The GTSs represented in SEQ ID NOS:9-1008 were generated using normalized cDNA libraries produced as described in U.S. application Ser. No. 60/095,989, filed August 10, 1998 entitled "Construction of Normalized cDNA Libraries From Animal Cells" (also
30 identified as attorney docket no. 8535-021-888), by Nehls *et al.*, the disclosure of which is herein incorporated by reference in its entirety.

Figure 1A provides a representative illustration of the retroviral vector used to produce the described polynucleotides. In brief, pools of modified human PA-1 teratocarcinoma cells (*e.g.*, PA-2, PA-1 that has been transfected to express the murine ecotropic retrovirus receptor) were typically infected at an m.o.i. between about 0.01 and about 0.1 (although much higher m.o.i.'s such as 1 to more than 10 could have been used). Figure 1B schematically shows how the target cell genomic locus is presumably mutated by the integration of the retroviral construct into intronic sequences of the cellular gene. The integrated retrovirus results in the generation of two chimeric transcripts. As illustrated in Figure 1C, the first chimeric transcript is a fusion between the coding region of the resistance marker (*neo* was used to produce the presently described GTSS) carried within the transgenic construct and the downstream exon(s) from the cellular gene. A mature transcript is generated when the indicated splice donor (SD) and splice acceptor (SA) sites are spliced. Translation of this fusion transcript produces the protein encoded by the resistance marker and allows for selection of gene trapped target cells, although selection is not required to produce the described polynucleotides.

Another chimeric transcript is shown in Figure 1C. This transcript is a fusion between the first exon of the transgenic construct (EXON1- the first exon of the murine *blk* gene was used as the sequence acquisition component for the described GTSS) and downstream exons from the cellular genome. Unlike the transcript encoding the selectable marker exon, the transcript encoding EXON1 is transcribed under the control of a vector encoded, and hence exogenously added, promoter (such as the PGK promoter), and the corresponding mRNA is generated by splicing between the indicated SD and SA sites. The region encoding the sequence acquisition exon (EXON1) has also been engineered to incorporate a unique sequence that permits the selective enrichment of the fusion transcript using molecular biological methods such as, for example, the polymerase chain reaction (PCR). These sequences serve as unique primer binding sites for EXON1-specific PCR amplification of the transcript and can additionally incorporate one or several rare-cutter endonuclease restriction sites to allow site-specific cloning. These features allow for the efficient and preferential cloning of transgene expressed fusion transcripts from pools of target cells relative to the background of cellularly encoded transcripts.

Based on the unique sequence present in EXON1, that is schematically indicated as a rare-cutter (A) restriction site in Figure 1B, selective cloning of the fusion transcript is achieved as shown in Figure 1D. cDNA was generated by reverse transcribing isolated RNA from pools of cells that have undergone independent gene trap events using, for example, RTT-1 as a deoxyoligonucleotide primer. The 3' end of the RTT-1 primer consisted of a homopolymeric stretch of deoxythymidine residues that bound to the polyadenylated end of the mRNA. At its 5' end, the oligonucleotide contained a sequence that can serve as a binding site for a second and a third primer (GET-2 and GET-2N). In the center, RTT-1 contains the sequence of a second rare-cutter (B) restriction site. Depending on the size of the pool and the transcriptional levels of the fusion transcript, second strand synthesis was carried out either with deoxyoligonucleotide primer BTK-1 using Klenow polymerase or by a polymerase chain reaction (PCR) in the presence of primers BTK-1 and GET-2.

The second strand reaction products that were generated by PCR were digested with restriction endonucleases that recognize their corresponding restriction site (*e.g.*, A and B). Additionally, PCR conditions were suitably modified using a variety of established procedures for enhancing the size of the PCR products. Such methods are described, *inter alia*, in U.S. Patent No. 5,556,772, and/or the PanVera (Madison, WI) New Technologies for Biomedical Research catalog (1997/98) both of which are herein incorporated by reference.

Prior to cloning, the PCR cDNA fragments were size-selected using conventional methods such as, for example, chromatography, gel-electrophoresis, and the like. Alternatively or in addition to this size selection, the PCR templates could have been previously size selected into separate template pools.

After digestion with suitable restriction enzymes, and size selection as described above, the cleaved cDNAs were directionally cloned into phage vectors (see Figure 1D), although any other cloning vector/vehicle could have been used. Such vectors are generically referred to as gene trapped sequence vectors, or "GTS vectors" in Figure 1D), preferably incorporating a multiple cloning site with restriction sites corresponding to those incorporated into the amplified cDNAs (*e.g.*, *Sfi* I, which allows for directional cloning of the cDNAs). After cloning, the resulting phage were handled as a conventional cDNA library using

standard procedures. Individual colonies and/or plaques were picked and used to generate PCR derived (using the primers indicated below) templates for DNA sequencing reactions.

A more detailed description of the above follows. The *btk* gene trap vector was introduced into human PA-2 cells using standard techniques. In brief, vector/virus containing supernatant from GP+E or AM12 packaging cells was added to approximately 50,000 cells (at an input ratio between about 0.1 and about 0.1 virus/target cell) for between about 16 to about 24 hours, and the cells were subsequently selected with G418 at active concentration of about 400 micrograms/ml for about 10 days. Between about 600 and about 3,000 G418 resistant colonies were subsequently pooled, and subjected to RNA isolation, reverse transcription, PCR, restriction digestion, size selection, and subcloning into lambda phage vectors. Individual phage plaques were directly amplified, purified, and sequenced to obtain the corresponding GTS.

When selection is not used, about 1×10^6 cells (PA-2, Hela, HepG2, or Jurkatt cells) per 100 mm dish were plated and infected with AM12 packaged *btk* retrovirus at an m.o.i. of approximately .01. After a 16 h incubation, the cells were washed in PBS and grown in culture media for four days. RNA from each plate was extracted, reverse transcribed, and the resulting cDNA was subject to two rounds of PCR, each for 25 cycles. The resulting PCR products were digested with Sfi and separated by gel electrophoresis. Six size fractions (between about 300 and about 4,000 bp) were recovered and each fraction was ligated into lambdaGT10Sfi arms, *in vitro* packaged, and plated for lysis. Individual plaques were picked from the plates, subject to an additional round of PCR, and subsequently sequenced to obtain the described GTSSs. The particulars are described in greater detail below.

Figure 1 shows the chimeric fusion transcript that is formed when the first exon of the transgenic construct (EXON1- the first exon of the murine *btk* gene was used as the sequence acquisition component for the described GTSSs) is spliced to downstream exons from the cellular genome. Unlike the transcript encoding the selectable marker exon, the transcript encoding EXON1 is transcribed under the control of a vector encoded, and hence exogenously added, promoter (such as the PGK promoter), and the corresponding mRNA is generated by splicing between the indicated SD and SA sites. The region encoding the sequence acquisition exon (EXON1) has also been engineered to incorporate a unique

sequence that permits the selective enrichment of the fusion transcript using molecular biological methods such as, for example, the polymerase chain reaction (PCR). These sequences serve as unique primer binding sites for EXON1-specific PCR amplification of the transcript and can additionally incorporate one or several rare-cutter endonuclease restriction sites to allow site-specific cloning. These features allow for the efficient and preferential cloning of transgene expressed fusion transcripts from pools of target cells relative to the background of cellularly encoded transcripts.

Based on the unique sequence present in EXON1, that is schematically indicated as a rare-cutter (A) restriction site in Figure 1B, selective cloning of the fusion transcript is achieved as shown in Figure 1D. cDNA was generated by reverse transcribing isolated RNA from pools of cells that have undergone independent gene trap events using, for example, RTT-1 as a deoxyoligonucleotide primer. The 3' end of the RTT-1 primer consisted of a homopolymeric stretch of deoxythymidine residues that bound to the polyadenylated end of the mRNA. At its 5' end, the oligonucleotide contained a sequence that can serve as a binding site for a second and a third primer (GET-2 and GET-2N). In the center, RTT-1 contains the sequence of a second rare-cutter (B) restriction site. Depending on the size of the pool and the transcriptional levels of the fusion transcript, second strand synthesis was carried out either with deoxyoligonucleotide primer BTK-1 using Klenow polymerase or by a polymerase chain reaction (PCR) in the presence of primers BTK-1 and GET-2.

The second strand reaction products that were generated by PCR were digested with restriction endonucleases that recognize their corresponding restriction site (*e.g.*, A and B). Additionally, PCR conditions were suitably modified using a variety of established procedures for enhancing the size of the PCR products. Such methods are described, *inter alia*, in U.S. Patent No. 5,556,772, and/or the PanVera (Madison, WI) New Technologies for Biomedical Research catalog (1997/98) both of which are herein incorporated by reference.

Prior to cloning, the PCR cDNA fragments were size-selected using conventional methods such as, for example, chromatography, gel-electrophoresis, and the like. Alternatively or in addition to this size selection, the PCR templates could have been previously size selected into separate template pools.

After digestion with suitable restriction enzymes, and size selection as described above, the cleaved cDNAs were directionally cloned into phage vectors (see Figure 1D), although any other cloning vector/vehicle could have been used. Such vectors are generically referred to as gene trapped sequence vectors, or "GTS vectors" in Figure 1D), preferably incorporating a multiple cloning site with restriction sites corresponding to those incorporated into the amplified cDNAs (e.g., *Sfi* I, which allows for directional cloning of the cDNAs). After cloning, the resulting phage were handled as a conventional cDNA library using standard procedures. Individual colonies and/or plaques were picked and used to generate PCR derived (using the primers indicated below) templates for DNA sequencing reactions.

Total cell RNA isolation was conducted using RNazol (Friendswood, TX, 77546) per the manufacturer's specifications. An RT premix containing 2X First Strand buffer, 100mM Tris-HCl, pH 8.3, 150mM KCl, 6mM MgCl₂, 2mM dNTPs, RNAGuard (1.5 units/reaction, Pharmacia), 20mM DTT, RTT-1 primer (3pmol/rxn, GenoSys Biotechnologies, sequence: 5' *tggttaggccccaggataggcctcgctggcctttttttttttt* 3', SEQ ID NO:1) and Superscript II enzyme (200 units/rxn, Life Technologies) was added. The plate/tube was transferred to a thermal cycler for the RT reaction (37° C for 5 min. 42° C for 30 min. and 55° C for 10 min).

The cDNA was amplified using two distinct, and preferably nested, stages of PCR. The PCR premix contained: 1.1X MGBII buffer (74 mM Tris pH 8.8, 18.3mM Ammonium Sulfate, 7.4mM MgCl₂, 5.5mM 2ME, 0.011% Gelatin), 11.1% DMSO (Sigma), 1.67mM dNTPS, Taq (5 units/rxn), water and primers. The sequences of the first round primers are: BTK-1 5' *gccatggctccggtaggtccagag* 3', SEQ ID NO:2 (GET-2, 5' *tggttaggccccaggatag* 3', SEQ ID NO:3), (about 7 pmol/rxn). The sequences of the second round primers are BTK-4 5' *gtccagagatggccatagc* 3', SEQ ID NO:4 (GET-2N 5' *ccaggataggcctcgctg* 3', SEQ ID NO:5), (used at about 20 pmol/rxn). The outer premix was added to an aliquot of cDNA and run for 20 cycles (94° C for 45 sec., 56° C for 60 sec 72° C for 2-4 min). An aliquot of this product was added to the inner premix and cycled at the same temperatures 20 times.

The PCR products of the second amplification series were extracted using phenol/chloroform, chloroform, and isopropanol precipitated in the presence of glycogen/sodium acetate. After centrifugation, the nucleic acid pellets were washed with 70 percent ethanol and were resuspended in TE, pH 8. After digestion with *Sfi* I at 55° C, the

digested products were loaded onto 0.8% agarose gels and size-selected using DEAE membranes as described (Sambrook *et al.*, 1989, *supra*). Generally, six approximate size-fractions (<700 bp, 700-900 bp, 900-1,300 bp, 1,300-1,600 bp, 1,600-2,000 bp, >2,000 bp) were separately ligated into GTS vector arms that were engineered to contain the

5 corresponding *Sfi* I "A" and "B" specific overhangs (*i.e.*, TAG and GCG, respectively). The ligation products were packaged using commercially available lambda packaging extracts (Promega), and plated using *E. coli* strain C600 using conventional procedures (Sambrook *et al.*, 1989, *supra*). Individual plaques were directly picked into 40 microliters of PCR buffer and subjected to 35 cycles of PCR [at 94° C for 45 sec., 56° C for 60 sec 72° C for 1-3 min
10 (depending on the size fraction)] using 12 pmol of the primers SEQ-4, 5' tacagttttctgtgaagattg 3', SEQ ID NO:6 and SEQ-5, 5' gggtagtcctccaccttttg 3', SEQ ID NO:7, per PCR reaction. The cloned 3' RACE products were purified using an S300 column equilibrated in STE essentially as described in Nehls *et al.*, 1993, TIG,9:336-337, and the products were recovered by centrifugation at 1,200 x g for 5 min. This step removes
15 unincorporated nucleotides, oligonucleotides, and primer-dimers. The PCR products were subsequently applied to a 0.25 ml bed of Sephadex® G-50 (DNA Grade, Pharmacia Biotech AB) that was equilibrated in MilliQ H₂O, and recovered by centrifugation as described above. Purified PCR products were quantified by fluorescence using PicoGreen (Molecular Probes, Inc., Eugene, OR) as per the manufacturer's instructions.

20 Dye terminator cycle sequencing reactions with AmpliTaq® FS DNA polymerase (Perkin Elmer Applied Biosystems, Foster City, CA) were carried out using 7 pmoles of primer (Oligonucleotide BTK-3; 5' tccaagtctctggcatctcac 3', SEQ ID NO:8) and approximately 30-120 ng of 3' template. Unincorporated dye terminators were removed from the completed sequencing reactions using G-50 columns as described above. The reactions were dried
25 under vacuum, resuspended in loading buffer, and electrophoresed through a 6% Long Ranger acrylamide gel (FMC BioProducts, Rockland, ME) on an ABI Prism® 377 with XL upgrade as per the manufacturer's instructions. The sequences of the amplicons, or GTSSs, are described in SEQ ID NOS:9-1008.

All publications and patents mentioned in the above specification are herein
30 incorporated by reference. Various modifications and variations of the described method and

system of the invention will be apparent to those skilled in the art without departing from the scope and spirit of the invention. Although the invention has been described in connection with specific preferred embodiments, it should be understood that the invention as claimed should not be unduly limited to such specific embodiments. Indeed, various modifications of

- 5 the above-described modes for carrying out the invention which are obvious to those skilled in the field of molecular biology or related fields are intended to be within the scope of the following claims.

0942674-102709

CLAIMS

WHAT IS CLAIMED IS:

1. An oligonucleotide comprising a contiguous stretch of at least about 15 nucleotides
5 first disclosed in at least one of SEQ ID NOS:9-1008.

2. An isolated cDNA polynucleotide derived from the genome of a human that is
capable of hybridizing to a sequence first disclosed in at least one of SEQ ID NOS:9-1008
under stringent conditions.

3. An isolated polynucleotide comprising a contiguous stretch of at least about 60
nucleotides first disclosed in at least one of SEQ ID NOS:9-1008.

4. The isolated polynucleotide according to Claim 3, wherein said polynucleotide
15 sequence comprises at least one of SEQ ID NOS:9-1008.

5. An *in vitro* process for producing a polynucleotide comprising the steps of:

- a) obtaining a polynucleotide template encoding a sequence capable of
hybridizing to a GTS of SEQ ID NOS:9-1008;
- 20 b) combining said template with a synthetic oligonucleotide sequence of about 14
to about 80 bases in length that comprises a contiguous sequence of at least
about 12 nucleotides disclosed in one of SEQ ID NOS:9-1008; and
- c) processing the combined oligonucleotide and template preparation such that
said oligonucleotide sequence hybridizes to said template in the presence of a
25 DNA polymerase molecule and a sufficient concentration of dNTPs for said
oligonucleotide sequence to prime DNA synthesis by said polymerase,
wherein a polynucleotide is produced that encodes at least about 50 contiguous
nucleotides first disclosed in one of SEQ ID NOS:9-1008.

30 6. The process of Claim 5 wherein said template is mammalian cDNA.

7. The process of Claim 5 wherein said template is mammalian genomic DNA.

8. The process according to Claim 6 wherein said templates are of human origin.

9. The process according to Claim 7 wherein said templates are of human origin.

662227-4293450

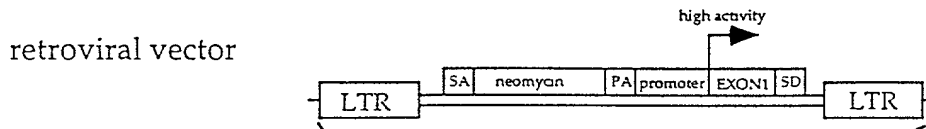
ABSTRACT

Novel human polynucleotides are disclosed that correspond to human gene trapped sequences, or GTSs. The disclosed GTSs are useful for gene discovery and as markers for, *inter alia*, gene expression analysis, forensic analysis, and determining the genetic basis of human disease.

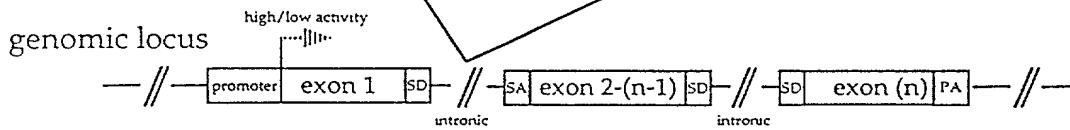
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662207-4292150

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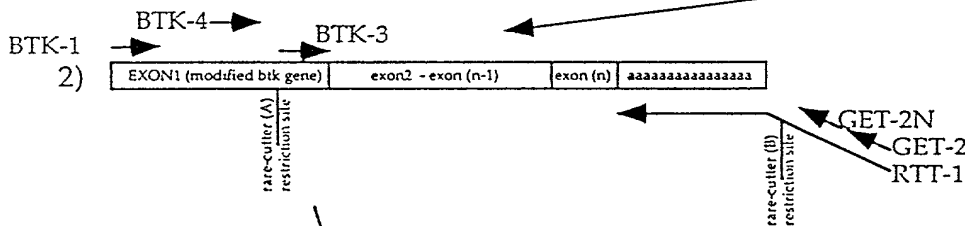
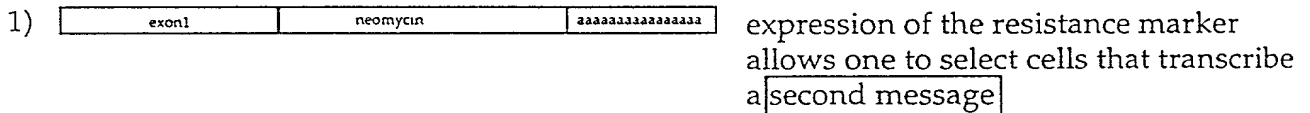


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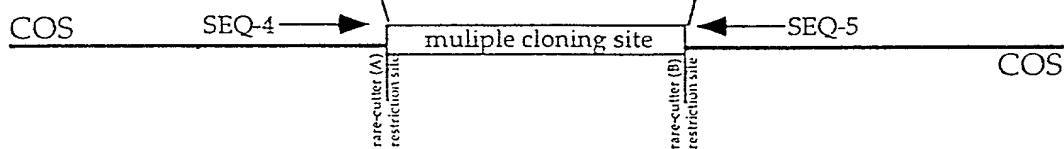
1 C)

chimeric transcripts/cDNA synthesis



1 D)

TST vector
(e.g. lambdaPhage)



DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below at 201 et seq. underneath my name.

I believe I am the original, first and sole inventor if only one name is listed at 201 below, or an original, first and joint inventor if plural names are listed at 201 et seq. below, of the subject matter which is claimed and for which a patent is sought on the invention entitled

NOVEL HUMAN POLYNUCLEOTIDES AND THE POLYPEPTIDES ENCODED THEREBY

and for which a patent application:

- ☒ is attached hereto and includes amendment(s) filed on *(if applicable)*
☐ was filed in the United States on as Application No. *(for declaration not accompanying application)*
 with amendment(s) filed on *(if applicable)*
☐ was filed as PCT international Application No. on and was amended under PCT Article 19 on *(if applicable)*

I hereby state that I have reviewed and understand the contents of the above identified application, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

EARLIEST FOREIGN APPLICATION(S), IF ANY, FILED PRIOR TO THE FILING DATE OF THE APPLICATION			
APPLICATION NUMBER	COUNTRY	DATE OF FILING (day, month, year)	PRIORITY CLAIMED
			YES <input type="checkbox"/> NO <input type="checkbox"/>
			YES <input type="checkbox"/> NO <input type="checkbox"/>

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below.

APPLICATION NUMBER	FILING DATE
60/106,442	October 30, 1998

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

APPLICATION SERIAL NO.	FILING DATE	STATUS		
		PATENTED	PENDING	ABANDONED

POWER OF ATTORNEY. As a named inventor, I hereby appoint S. Leslie Misrock (Reg. No. 18872), Harry C. Jones, III (Reg. No. 20280), Berj A. Terzian (Reg. No. 20060), Gerald J. Flintoft (Reg. No. 20823), David Weild, III (Reg. No. 21094), Jonathan A. Marshall (Reg. No. 24614), Barry D. Rein (Reg. No. 22411), Stanton T. Lawrence, III (Reg. No. 25736), Charles E. McKenney (Reg. No. 22795), Philip T. Shannon (Reg. No. 24278), Francis E. Morris (Reg. No. 24615), Charles E. Miller (Reg. No. 24576), Gidon D. Stern (Reg. No. 27469), John J. Lauter, Jr. (Reg. No. 27814), Brian M. Poissant (Reg. No. 28462), Brian D. Coggio (Reg. No. 27624), Rory J. Radding (Reg. No. 28749), Stephen J. Harbulak (Reg. No. 29166), Donald J. Goodell (Reg. No. 19766), James N. Palik (Reg. No. 25510), Thomas E. Friebe (Reg. No. 29258), Laura A. Coruzzi (Reg. No. 30742), Jennifer Gordon (Reg. No. 30753), Jon R. Stark (Reg. No. 30111), Allan A. Fanucci (Reg. No. 30256), Geraldine F. Baldwin (Reg. No. 31232), Victor N. Balancia (Reg. No. 31231), Samuel B. Abrams (Reg. No. 30605), Steven I. Wallach (Reg. No. 35402), Marcia H. Sundeen (Reg. No. 30893), Paul J. Zegger (Reg. No. 33821), Edmond R. Bannon (Reg. No. 32110), Bruce J. Barker (Reg. No. 33291), Adriane M. Antler (Reg. No. 32605), Thomas G. Rowan (Reg. No. 34419), James G. Markey (Reg. No. 31636), Thomas D. Kohler (Reg. No. 32797), Scott D. Stumpson (Reg. No. 33607), Gary S. Williams (Reg. No. 31066), William S. Galliani (Reg. No. 33885), Ann L. Gisolfi (Reg. No. 31956), Todd A. Wagner (Reg. No. 35399), Scott B. Familant (Reg. No. 35504), Warren S. Heit (Reg. No. 36828), Kelly D. Talcott (Reg. No. 39582), and Mark A. Farley (Reg. No. 33170) and, all of Pennie & Edmonds LLP, whose addresses are 1155 Avenue of the Americas, New York, New York 10036, 1667 K Street N.W., Washington, DC 20006 and 3300 Hillview Avenue, Palo Alto, CA 94304, and each of them, my attorneys, to prosecute this application, and to transact all business in the Patent and Trademark Office connected therewith.

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	POST OFFICE ADDRESS	STREET 178 S Cochran's Green Cir.	CITY The Woodlands	STATE OR COUNTRY Texas	ZIP CODE 77381
2 0 2	FULL NAME OF INVENTOR	LAST NAME Zambrowicz	FIRST NAME Brian	MIDDLE NAME	
	RESIDENCE & CITIZENSHIP	CITY The Woodlands	STATE OR FOREIGN COUNTRY Texas	COUNTRY OF CITIZENSHIP USA	
	POST OFFICE ADDRESS	STREET 18 Firethorne Place	CITY The Woodlands	STATE OR COUNTRY Texas	ZIP CODE 77382
2 0 3	FULL NAME OF INVENTOR	LAST NAME Sands	FIRST NAME Arthur	MIDDLE NAME T	
	RESIDENCE & CITIZENSHIP	CITY The Woodlands	STATE OR FOREIGN COUNTRY Texas	COUNTRY OF CITIZENSHIP USA	
	POST OFFICE ADDRESS	STREET 163 Bristol Bend Circle	CITY The Woodlands	STATE OR COUNTRY Texas	ZIP CODE 77382

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

SIGNATURE OF MICHAEL NEHLS (201)	SIGNATURE OF BRIAN ZAMBROWICZ (202)	SIGNATURE OF ARTHUR T. SANDS (203)
DATE	DATE	DATE

SEQUENCE LISTING

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 Zambrowicz, Brian
 Sands, Arthur T.

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 Polypeptides Encoded Thereby

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<211> 210

<212> DNA

<213> Homo sapiens

<400> 12

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210

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 <211> 453
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<400> 13
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<210> 14
 <211> 344
 <212> DNA
 <213> Homo sapiens

<400> 14
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 agatcttggc tcaactgaac ctcacctcc cagggttaag tgattctcct gcctcagcct 180
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<210> 15
 <211> 473
 <212> DNA
 <213> Homo sapiens

<400> 15
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<210> 16
 <211> 403
 <212> DNA
 <213> Homo sapiens

<400> 16
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 ccagctatct caatggacca acaaagttag actccaaagt gagccaagaa gtcctcaaag 180
 ccttctctaa aggatggagg aacacatgaa tatatacatc aaatcctcct tccacagaga 240
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 <212> DNA
 <213> Homo sapiens

<400> 17
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<210> 18
<211> 486
<212> DNA
<213> Homo sapiens

<400> 18
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tggtca 486

<210> 19
<211> 443
<212> DNA
<213> Homo sapiens

<400> 19
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taccctatg gagttcctgt tttcccttag atagttacat ttcttccctg ctatataaac 360
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tgnagaacct ggttaaaggc ctt 443

<210> 20
<211> 360
<212> DNA
<213> Homo sapiens

<400> 20
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tccgagttgc ctatctgatt ctgaggacac agcaccctcc accagcacac ctggcacttg 300
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<210> 21
<211> 212
<212> DNA
<213> Homo sapiens

<400> 21
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<210> 22
 <211> 456
 <212> DNA
 <213> Homo sapiens

<400> 22						
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agaccaaagc	gggaagagtg	aagggaataa	taacctcccc	ttgctgagac	gtgtgacact	180
caaggcccaa	atcagaaaac	ttctgcttga	ggaaacatta	ctctttcctc	catgactgct	240
ggtggtatcc	atctgtcaga	ctccctgagc	cttgatgccc	ctcactcctt	ctgctgtgga	300
gtaggaacgt	gaaacacaaa	cagtcattcc	tccaattcct	ccaacccatg	ggggattggn	360
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<210> 23
 <211> 350
 <212> DNA
 <213> Homo sapiens

<400> 23						
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cagggngaac	aaagggttaac	cactgaagac	agtttttagac	cattatctgc	caggagtagn	240
agnacagagga	atctacctga	acatgcttta	ccaactcgct	tttatctgcc	ggttacttgc	300
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<210> 24
 <211> 457
 <212> DNA
 <213> Homo sapiens

<400> 24						
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tggctcctgc	ctgggtcctg	gcactggctg	gatgaagtct	cagaatttgc	tcctgcccc	360
aggcagaggc	cctcatgcaa	atttgagctg	tttccagtgc	cttcagccag	aagtccattt	420
tgcttgngg	tggacccttc	ttttcttctt	ggatggc			457

<210> 25
 <211> 267
 <212> DNA
 <213> Homo sapiens

<400> 25						
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tcttcccacc	taagcncccc	aaagtgtctg	gattacaggc	atgagccacg	actcccagcc	180
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ntttngttn	nntnttaate	cgcctt				267

<210> 26
 <211> 346
 <212> DNA
 <213> Homo sapiens

<400> 26
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tgtgaagaat ggccagccac caccggangc taggggagac gccagcacag attctccctg 180
agagtatcca gaagaaacca accctccaac acctggattt cagacttctg accttnagaa 240
gtngagacca attnancatc tgtagtgntt tactcttctt acctnaaann tataaaaaata 300
tnttntctc nccccaccct tttntttcat nttcttttct ttactc 346

<210> 27
<211> 502
<212> DNA
<213> Homo sapiens

<400> 27
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tgggcggatc acttgaggtc aggagttcaa aaccagcctg gccaacacgg tgaaaccag 180
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gaggggtgaaa tgcagaaaat gactaatgct tttcatagta agnccgctat ccatttgntt 420
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ctttccatna aaaaaacagg gc 502

<210> 28
<211> 104
<212> DNA
<213> Homo sapiens

<400> 28
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ngacactagg ccnggcgcgn natgacctt ttgagcaagtt cagc 104

<210> 29
<211> 260
<212> DNA
<213> Homo sapiens

<400> 29
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agtctccggc aggcctggtc gttttgatct ttacaacttg ggttgatgat cacctcagcc 180
ctaccttcaa aagcgattcc tgtccacagg gggttggtaac tgccttcccc ttacacaaa 240
aaacaagaaa aaaaatggtg 260

<210> 30
<211> 425
<212> DNA
<213> Homo sapiens

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gtgccagagg atcaacaaaag aaaaacaact tggcctcaca tgataatgac ccaagtgggt 360
tggtaagaa aaagaagtgg caatgaatga acagattata catttctttg aagaatttga 420
ctgag 425

<210> 31
<211> 533

<212> DNA
<213> Homo sapiens

<400> 31
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ctgaagggtgc tttggcacct ggagactact ngagccagcc ttgccggggt tctaattctga 240
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ccagcacttt gngaaggcca aaggcaaac caaatcactt gaggttcang nagtttttaa 420
agaaccagtc ctgcccacac cantggnttg aaaaaccctt nttttntna ctaanaaac 480
acaaaaaaa ttaaccncn ttgttanggg ggcaancccc cttttataat tcc 533

<210> 32
<211> 337
<212> DNA
<213> Homo sapiens

<400> 32
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caagctgcga cttctaattc tcttggctac cccactggtc tggttcaacc tgagctcgca 120
ctgattttttt tggatttgac gtcaaggcaa acatcattgc aaactcaatt ccagcatgcc 180
agctccagag caccgtaacc tttaaaaact tgggatttcg ccgggcgcgg tggtcacac 240
ttgtaatccc agcacttcgg gaggccgagg cgggtggatc acctgaggtc aggaatttga 300
gatcagcctg cacaacatgg tgaaaccccg tctctac 337

<210> 33
<211> 274
<212> DNA
<213> Homo sapiens

<400> 33
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gagatgcaca gggagggcgc tgtgtgaaga tgatggcaga gggttcagag atgctcaaag 120
agccaagaac atcaagggcc gccggcacca ccagaagtca ggaaaaggca aagaggggttc 180
cactcagagt cttggagcat ggcctcccga tgccttgatt tcagacttct agcctgcagg 240
atgataagac agtaaatcc tgcagtttta agcc 274

<210> 34
<211> 290
<212> DNA
<213> Homo sapiens

<400> 34
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atgggtcatg taaagttaca gctgagaagg tactccctct cttaaactcg tcgggggtcc 240
atgtggcttc aagattgaaa ataaaactac tgcgtatggg atataaactt 290

<210> 35
<211> 384
<212> DNA
<213> Homo sapiens

<400> 35
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ttcatgctga aatcctgggg gaaagaagtg ctaaactcagt tgaggacatg ggaacattta 120
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tgtctgaggc taccagaagc caggagagag gcctggaaca gatcctgcac tagaaccttc 300

aaagagagca	tggtcctgct	gacatgttga	ttttggactt	ctggcctcca	gagctgtgag	360
aataaatttc	agttgtttta	agcc				384

<210> 36
 <211> 516
 <212> DNA
 <213> Homo sapiens

<400> 36						
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cntttacca	cntccctgnt	ttccgcnttt	tttgggggga	ggacnaccgc	ttcctgaacc	120
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nacgttcccg	gccattggg	aacggacttt	tnncccaaa	aaaaagggtca	aggccccatt	420
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<210> 37
 <211> 481
 <212> DNA
 <213> Homo sapiens

<400> 37						
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<210> 38
 <211> 491
 <212> DNA
 <213> Homo sapiens

<400> 38						
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gccataatc	aacaatggcc	acttcttcca	ctcccaagtt	ggctgaattg	caatgggacg	180
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ccgcctcgac	ctcccatagg	gctgggttta	caggcgtgag	gcactacgcc	cggccataat	420
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<210> 39
 <211> 323
 <212> DNA
 <213> Homo sapiens

<400> 39						
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tcattggggg	tgaaaatggt	aaaagctagc	ccaaagcaca	ctacgtacat	gcaggagttg	240
cctaaaagca	catatgatta	aaaactccaa	agaaaacgca	aacncttttg	gatttacgat	300

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323

<210> 40
<211> 496
<212> DNA
<213> Homo sapiens

<400> 40
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cttaaccctt tgagga 496

<210> 41
<211> 331
<212> DNA
<213> Homo sapiens

<400> 41
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<210> 42
<211> 238
<212> DNA
<213> Homo sapiens

<400> 42
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agacacgctt tgcaagattc agctgacgca gacctgctgt gtcattattac tttctttgtc 120
ttgctggaaa gaagtgcaca ataccctaagg aaacctcctt gtggcctcca ttaaccccag 180
ctagcaccta ccaaatcagc aaaatccgaa atatgattta aataaattat gcttaaaag 238

<210> 43
<211> 565
<212> DNA
<213> Homo sapiens

<400> 43
cctgctttta ttcanaactt gaaggacatg gncccgcgga gggagaagat tcattcgnc 60
attgaccccg agggangnt tttnacttc cgccgcctg ggatgcgggg cttctttnt 120
tcttccaaca cattcttggc ttcattcatg ggcccggaag aatcttggcn aatggcccaa 180
tgtccccccc agattcccc agaanggggt caccagaat ccctaaaacc atgccgaang 240
gaaagcttcc catcaaaaat ttggtcaagg gcnatatcat caaagggaag tattgccacg 300
aagaaccaat cgggggggaa cngggccggg angccccggg aagttttccc ggggaagaaa 360
cgaagccaaa aaagccgcca ntncctgggg gcctttgctt gggaagaaac cttttctaaa 420
aaanggccac cctttgggcc ccttgccgcc atcattggga ctttttttc aagcttttcc 480
cttccccaag ggaatcaaag ttttctttac caccaaactt cnttgtgtng gcntttttgg 540
ggacaaaaaa tttaaaaagc ttttag 565

<210> 44
<211> 684
<212> DNA

<213> Homo sapiens

<400> 44

tgggggggag	cttaccttgg	catttttaaag	ttcaanaaact	tggagggggtt	tggagggggtc	60
ccagtttacc	ttggcaacca	ttccaagtta	ttttggaaaa	aaaggaatgg	aatttttttg	120
cttttcattt	tggcaccttg	gccctttttg	gcttttcttt	cggtcacaaa	aggaattttc	180
ccttaaaagg	ggaaaaaaat	ggggggccac	ccacccaaga	aaattccctt	ggggaagnaa	240
aatcctggct	ttccaaaagn	aaaccttggg	ttaaccccaa	aagnaaattt	tggggattct	300
tgggaagnaag	gggtaagnaa	aggggaaaat	gggaaattcc	ggtaaagntn	ggggaattgc	360
cttgccattt	tggtccttac	caattcttcc	ccttttaagg	gaaccttcca	aaaaaggaac	420
cttttttaagg	ttccttttcc	ccaaggggtg	ggccccaagc	cttggaattt	taacccttcc	480
cccaagncct	tggttccaaa	ggggccctt	tccccttttg	gggaaaaaac	ctttgggggg	540
cctttccaaa	ggccttttgg	gaaagggaag	naaaaccctt	ggggggcctt	ttaattttnc	600
cccnaaggna	aattcnaacc	aaccttttnc	cccntttttt	nccctttggg	gggggggaaa	660
aggttncctt	taaccaattt	ttcc				684

<210> 45

<211> 259

<212> DNA

<213> Homo sapiens

<400> 45

acatgggggt	ctcactgtgt	tgcccaggct	ggagtacagt	ggctattcac	aggcacgata	60
attgggtata	atagcctgga	actcctggac	tcaagtgatc	ctcttgcttc	agcttttcta	120
gcagctagga	ctacaggctt	gtgccactgc	atccaacgtg	gacccctttt	tgtatgccac	180
aatctatcca	gtgcctttcg	ctaagctttg	caatttccct	cctatttgta	atattaatgg	240
tttatacttt	ttgatttat					259

<210> 46

<211> 346

<212> DNA

<213> Homo sapiens

<400> 46

gacaaaaaca	atgacagact	tgtccgagct	accatcgaag	tcttgggtct	gcacgcaaag	60
gatggaatcc	cccacttcca	ttcccaaaag	tttccctacg	ggagcctggg	gttgtctcct	120
ccggaactgt	cctcgcggct	gcctgttttt	ccctagccat	ggttactgcc	tgcgggggat	180
tcagcctgtg	aaggcagtc	aggcagttca	ccactgtcat	caaacctaca	cccctgtgtg	240
catgcgcaca	cacacttgta	accagtggtc	acaatgcagg	aattagggaa	gcaaaggcaa	300
atcgctgaat	agctagggca	cctgatccct	gtaagggccc	atcaag		346

<210> 47

<211> 203

<212> DNA

<213> Homo sapiens

<400> 47

atcaatgaaa	caagaacaaa	gaggagaatc	aggaagtcag	cagtatgtct	cctttatttc	60
cctatgcttt	agagtggaaa	gaaataccag	aatctggaac	caggaagtga	gtcctctagg	120
gatgaggagg	tattcagctg	gatggctttt	taaaacattt	cctccagagt	cttctgcctg	180
attaaaaaca	gttttcgtcc	tag				203

<210> 48

<211> 213

<212> DNA

<213> Homo sapiens

<400> 48

ctgagatcaa	tgaacaacg	aacaaacgag	gagaatcacg	gaatgtcagc	angtatgtct	60
cctttattcc	cctatgcttt	agagtggaaa	gaaataccag	aatctggaac	caggaagtga	120
gtcctctagg	gatgaggagg	tattcagctg	gatggctttt	taaaacattt	cctccagagt	180
cttctgcctg	attaaaaaca	gttttcgtcc	tag			213

<210> 49
 <211> 341
 <212> DNA
 <213> Homo sapiens

<400> 49
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 cggtctctac cgaggacccc tggatcaacc cgctgggtccc tcaattaccc tagaaaattc 120
 ccctctggag gacaccaaac tgcagggccc ctctctcacc cctaaccagc aggaagtagc 180
 cagaacgact gccacacggt tccaacacagc agttgggggtg tctgttttag aggcaggact 240
 gagaggaggt gccagctggg ctctctgggt caaggaaggg ggtnaaaaaa gctgngaaac 300
 tcactcattt cctgcatcag gacttacttc agtcctgttt t 341

<210> 50
 <211> 337
 <212> DNA
 <213> Homo sapiens

<400> 50
 acaaagaagt ctctgcccag ggtcgttgct tttaaagata ttctgatgca aaatgccagt 60
 actctgctcc tccattctac agatcaacaa atctttctac agccagggtgc agggggctct 120
 tgcctgtaat cctagcactt tgggaggcca aggcaggcag atcacttgag gtcaggagtt 180
 tgagaccaac ctggccaaca tgatgaaacc ccatctctac taaacataca aaaacattag 240
 ctaaactggg tgtcgacgc ctgtcgtccc ancttctnng gangnttgag gcaggaaaat 300
 cncttgaacc tgggagggtg aggtgcagc gagctcc 337

<210> 51
 <211> 308
 <212> DNA
 <213> Homo sapiens

<400> 51
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 attctataga tctgcatgac ccgggcagtg atgtcatcat gattgagagc agctaactat 120
 ggtcggacgg atgacaagat ttgtgatgct gacccatttc agatggagaa tacagactgc 180
 tacctccccg atgccttcaa aattatgact caaaggggaca tctctgaagg tctctgcaa 240
 ctccagagct cccgccctga ggaatttgct gggcttttgt tgcgantgnc tngaagttcg 300
 ccctttaa 308

<210> 52
 <211> 331
 <212> DNA
 <213> Homo sapiens

<400> 52
 gctggagtgc aaaggcgcga tctcggctca ctgcaacctc cgcctcccag gttcaagcga 60
 ttctcctgcc tcagcctcca gaatagctag gattacaggc gcatgccacc acgcccggct 120
 aatttttgta ttttcagtag agaagggtt tagccatggt agttagccag gctgatctcc 180
 aactccgacc tcaagtgatc cggccgcctc ggcctcccaa aatgctggga ttacaggcat 240
 gagccaccgc gccagcccc aggcaacata ttttcttaag gnanccttta anaaggccat 300
 gcatttccac atttccacac ctttcattac t 331

<210> 53
 <211> 322
 <212> DNA
 <213> Homo sapiens

<400> 53
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 tctcagtgcc tcaaccagca gctacaagtc agagtcaagc ccattatgac cccttcttcc 120
 tgctgagct ttggccccag atattctgag aggggttggg tctccaggg catcgacctc 180
 acagctctgt ctctgtctct gagctcttct cctggcatgt aaattcagga ctcagataag 240

ccctgccctt catagccacc ttggatgctg cgtgactacc tngaatcan ggaggactgg	300
aaaagacatt agggaggga cc	322

<210> 54
 <211> 330
 <212> DNA
 <213> Homo sapiens

<400> 54						
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agacgctgca ttcttagatt gaaggcctgg ctcttggtgg acagccttct ctctaaagct	120					
actctctcca ggttctggca actgcagcca aaggggccaaa gtgtatgact caggagtgtt	180					
acttgaattc ctggaaccag ctatgcctga agtcaatcca ttccagttgc actttcttca	240					
ttctaaatct ccctgttctt tcaaggatgc ctgggttgcg aacngggntt ccngganggg	300					
taatgacaaa gnggcttatt cccataaat	330					

<210> 55
 <211> 325
 <212> DNA
 <213> Homo sapiens

<400> 55						
angcaaaa caatcctttt ccattttata ggacaatgcc aactcctgaa gatcttcttc	60					
taagtgggtca aagggtgagc atactgcagg caacaaaaga tcgagcatac tacaggcaac	120					
caagggtcaa gacaaattta caggatccct ccctaccgtg gccactaccc agcttcccag	180					
tagtgccttc ctaatttctt gcccatggta atggagacaa atacctgcag aagaacataa	240					
tcaaaactca aaggaaagta aggaggagca agttttttta aaagggattc cagttggcaa	300					
tcctcttgtt actaattctt gttga	325					

<210> 56
 <211> 330
 <212> DNA
 <213> Homo sapiens

<400> 56						
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acacatgaaa agaaaatgct ttcaaggacc aaaggaattc atctacaaat atggaatttc	120					
cagcatggaa gtcagtgaca aagccctggc atacccccat cgcaggtgtc gtgagaacac	180					
cgtccagtgg gacgaggcca gccctgccct gagaagctga gattcccacc ctacctggag	240					
ggagctgagc accctcacag caactctgag cccctgactt caaanggaaa cttttttcct	300					
gtggtatcag acgtagaggg cgggctcttt	330					

<210> 57
 <211> 199
 <212> DNA
 <213> Homo sapiens

<400> 57						
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tagcctccct gagtaactgg gaccacaggc atgaaccacc atgcccagct acctttaaaa	120					
aaatagagag agagacaggg tctcactatg ttgttcaggc tggctctctaa taaattgtta	180					
ttaccaatga aaaaaaaaa	199					

<210> 58
 <211> 419
 <212> DNA
 <213> Homo sapiens

<400> 58						
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tttcatcacc ttctgctaag aggcgcccct ccaccacct gcatgagtaa gacacagcct	120					
ccctgcagca cagaggaggc ttntgtgagt gccanggca tcaccaaggt caggggagaac	180					

ctcttgaggt	aactngcatt	tgtgtcacga	agccgaanag	ggttgcaggg	gattgcgtga	240
tccccatcct	gntcatgggc	caccacccca	ntccactcan	aagataaggc	ctcctngatc	300
anatncaatg	actcattgca	tgttatcccc	gcacttttan	aagcttangt	nggccccgatt	360
ggctgaaccn	cattantttt	taagaccatn	cctggccaan	aatggnggaa	ccccatfff	419

<210> 59
 <211> 280
 <212> DNA
 <213> Homo sapiens

<400> 59						
ggtttcatca	tgttgtccag	gctggccttg	aactcctggg	ctcaagcaat	cagcccacct	60
ctgcctccca	aagcgttgag	attacaagcg	tgagccacca	ttcctggacc	ctcgtagttt	120
ttctggagcc	tcgtgatntg	atatgatctt	cctgccgctg	attcctcaca	gtattggctt	180
gccacacctc	caggggcact	gatcacattc	tacctggcat	tatttcatct	gagtnccctgn	240
cctanccctt	ctgcccatta	gactgtaacc	ttgttttaggc			280

<210> 60
 <211> 359
 <212> DNA
 <213> Homo sapiens

<400> 60						
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agggtgctatg	gaaatagcac	atgctaaagg	agtcttctaa	gcagcccana	ggcgatgaca	120
taccagtgcc	agcagaggag	gagaaccacg	cttcagtata	acaaaaactt	cnatgaatca	180
tgcncaatgt	ggaaaagtcg	aatagacatg	gctgaggata	aaagaaaaga	acgtacacat	240
aatctcacta	cccagagaga	agcaatgttg	acatatttct	cttcctcaat	gcatatttat	300
atattgttga	tatttttact	gtctgtgcaa	ttttgcttta	attaaacatt	tagattatg	359

<210> 61
 <211> 70
 <212> DNA
 <213> Homo sapiens

<400> 61						
nantcattat	gnntnctggt	tncttggtatg	gactccgact	ganagatana	cgccattgac	60
gcatactcgg						70

<210> 62
 <211> 178
 <212> DNA
 <213> Homo sapiens

<400> 62						
cttgattaca	gcagcntgat	gctttgcctg	gataaacaaa	ngctctnngc	naggaagaga	60
ctttnggacc	agcaagagac	tagantngaa	acagagttta	aacaagcatc	ataacccttg	120
aagcnaattt	tatcatgatt	tcaatttgca	tattaagaaa	ctaagatttg	gaaaaaaaa	178

<210> 63
 <211> 167
 <212> DNA
 <213> Homo sapiens

<400> 63						
gtgaagaatg	aaggaacatt	ccaggatcaa	gtttcctaaa	atttggaat	aaactgtgga	60
aattctccta	agtttagggg	gagacagaac	cacctagaat	cactgacacc	ttgattcaac	120
acaatccgca	gaccgggtga	ttaaataaag	cacttttggtt	ttttcat		167

<210> 64
 <211> 435
 <212> DNA

<213> Homo sapiens

<400> 64

gggcattcaa	gataagccat	catatccctt	gtggcctgca	cgtacacatc	cagatggccg	60
gttcctgcct	taactgatga	catctcacca	caaaagaagt	gaaaatggcc	tgcttcctgcc	120
ttaactgatg	acatgggtctt	gtgaaattcc	ttctcctggc	tcatcctggc	tcaaaagctc	180
ccctactgag	caccctgtga	ccccactct	gcccgccaga	gaacaacccc	cctttgactg	240
taattttcct	ttacctaccc	gaatcctata	aaacggcccc	acccttatct	ccctttgctg	300
actctctttt	cggactcagc	ccacctgcat	ccaggtgaaa	taaacagctt	tattgctcac	360
acaaaaaaaa	aggngggggg	ggncnnnncc	nattttgggt	tnaaacnnnn	gnantntttt	420
ttaaaagggg	ggggg					435

<210> 65

<211> 355

<212> DNA

<213> Homo sapiens

<400> 65

agctggagcc	tcactttttc	accagggctg	aagtgcagtg	gtgtgatctc	ggctcactgc	60
aacctccgtc	tcccgagttc	aagcgattct	cctgcttcag	cctcctgagc	agctgggact	120
acaggcatgc	accaccatgc	ccagcttatt	tttgattttt	tagtagagat	ggggtttcac	180
catattggcc	aggctgggtc	cgaatcctga	cctcgtgatc	cacctgcctc	ggcctcccaa	240
aatgctggga	tcacacgcgt	tagccaccgc	accagcgctt	atttacctat	taaagagcat	300
attgattgct	tccaagtctt	aacaattatg	aataaagctg	gtatggactt	tcaca	355

<210> 66

<211> 340

<212> DNA

<213> Homo sapiens

<400> 66

gatgtggcag	aagtgaccct	atgtaactca	gaaagaccca	accttaagag	cttctgcttt	60
cctgcttgga	acacccccta	ctgaaaacca	gctgccaaac	aaaagggcca	ccatgctgtg	120
aggaaatcca	agccagccag	tgaagnga	agtcacatga	aggacgacca	aggcacagtc	180
atatgagtga	agccttcttg	aacattccag	cctagctgtg	gatgaatgca	gcaaagttag	240
tgatccagtc	aacgccataa	gcaacagaag	aacagcccag	ccaagccctg	cctgaattcc	300
tgagccatga	ttcataagca	aattaaacag	ttattgtttc			340

<210> 67

<211> 439

<212> DNA

<213> Homo sapiens

<400> 67

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cccaccttaa	ctgatgacat	tccaccacaa	aagaagtgtg	aatggccagt	ccttgccctta	120
actgatgacg	ttaccttggtg	aaagtccttt	tcctggctca	tcctggctca	aaaagcacc	180
ccactgagca	ccttggtggc	cctactccta	cccgccagag	aacaaaaccc	ccttgactgt	240
aattttcctt	tacctacca	aatcctataa	aacggcccca	cccttatctc	ccttcgctga	300
ctctcttttc	ggactcagcc	cgctgcacc	caggtgaaat	aaacagccct	tggttggttac	360
acaaaaaaaa	aagggccggn	ggggccantt	aanntgggan	taaacnaggn	ngannttgnt	420
naaanggggg	ggaccccca					439

<210> 68

<211> 347

<212> DNA

<213> Homo sapiens

<400> 68

ggtctctgtc	actgaagctg	gagtgcagcg	gcgcaatcac	agctcactgc	agcctcgacc	60
tcccagggtt	aagagatcat	cccacctcag	cctccctagt	agctggaact	ataggtgcac	120
gccagtatgc	ctggctactt	tttgttttta	tagagacaca	atctcactat	gttgcccagg	180

ctggttctcat	attcctgggc	tcaagccatc	cacctgcttt	ggcctcccag	agtgtctggga	240
ttacaggtgt	gagccacat	gccagcctc	gaatttcctc	tacttggcct	gaagcagaaa	300
gccacagaca	acagagacct	aagctnctaa	tgaataaaga	accccc		347

<210> 69
 <211> 328
 <212> DNA
 <213> Homo sapiens

<400> 69						
gccctgcact	cgatggatca	gctggcacca	cccagatcaa	taaactggct	catctgggtct	60
tgtggcctcc	atccaagtac	caactcagtg	caagaagaca	gcttcgaccc	cgatatgattt	120
aatctccaac	ctgaccaatc	agcactccct	actccctggc	cccctaccca	ccaaataatc	180
ctcaaaaaaa	cccagtcctc	aaattttcag	gaagactgat	ttgagtaata	ataaaaactct	240
ggtctcccgt	tcaaaaaaaa	aanggccagn	gnggccantt	nanttngnan	ttanccnggn	300
tgaanttgt	naaanggggg	ggcttacc				328

<210> 70
 <211> 386
 <212> DNA
 <213> Homo sapiens

<400> 70						
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tgcttgagcc	caggagttca	agaccagcct	gggcaatata	gcaagacccc	atctctacca	120
aaaaaaaaatt	taattagctg	ggcatgggtc	tgtgtgtata	tagtttcacc	tactcaggag	180
gctgagatgg	gaggatagcc	tgagtccaag	aagtgaagc	tgcatgagc	tgtgatcgca	240
ccactgcact	ccagccttgg	caactgggga	aagaccctaa	ctcaaataaa	atttaaatat	300
atatatacac	acacacacat	atacacacac	acacacacac	acacacacat	atacacatgt	360
atnttttgta	ataaatggat	aaacac				386

<210> 71
 <211> 459
 <212> DNA
 <213> Homo sapiens

<400> 71						
aaactgcacc	tcactggctg	ggaatgagga	tatcttatgg	aagattctta	tttttggaac	60
tttttgaact	ctctctgttg	gcttctgaaa	gctgaatgct	ctttcaaagg	acctgaagat	120
ttcttttgtc	ctcagttaca	ttgagcccac	atttatgagg	cactggtaaa	acatttctgc	180
aggagggagt	tatgtgcatt	gttcctctta	gagaaacatt	gtcacacta	actcctgact	240
gcatgcattt	tgcaaatgca	cagctcagtg	agtgtgtctt	cccggtgttt	gtgggtttaca	300
atcctgcaag	aaatggcttt	ctatgaggca	aaatggataa	tggcctttta	ttttaagtta	360
caaagagttg	ggtggcaagg	gggtagggaa	ggcaacccta	aatgctttga	atgaattatt	420
gaattgacat	ggtccaaagt	gacatttctt	tttaaaatg			459

<210> 72
 <211> 528
 <212> DNA
 <213> Homo sapiens

<400> 72						
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ctgggcatgt	gtttccttga	gtatatattg	attggaattt	tcccaccttc	ttgcattttg	120
aatatatgcc	agcattttct	caagatgtat	atcctagagc	aaaattttctg	ggccatagac	180
agagtcttgc	tctgtcgccc	aggctggagt	gatgaggccc	gatcatcact	ccacctgggc	240
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gggattacag	agccccgtgc	atccagactg	gagtgcagtg	gtacaatccc	ggctcactgc	360
aacctccacc	tcctgggttc	aagcgattct	cctgtctcag	cctctcaagt	acctggaatt	420
acaggcatgt	gccaccgcac	cccatgtaat	gtcccgatct	tgatggatgc	actctgggta	480
tagaaatgtc	ctcattttta	ggaaatacat	gccaaagtaa	gtaaaggc		528

<210> 73
 <211> 296
 <212> DNA
 <213> Homo sapiens

<400> 73
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 cctgtgctgt gtaccatgcc cctcctgctg ctgaactgga gagaaaacgt ggctggcagc 120
 ttttgtttct tgagaagttc cgaatctttt gcattctggtg ctgcgagaag gttcacctgg 180
 ttaaaccatcc tcaagtcagc agcacagctc cttctggaag gcactttaac tggatgggat 240
 cctctcactg tagacattgc tacctccctt tcctgaaata aagcctgctc cagagc 296

<210> 74
 <211> 410
 <212> DNA
 <213> Homo sapiens

<400> 74
 gatgaatggg cagagctggg cacaagctga aggtggctcc tccagtgggt ctcacaaacc 60
 caacccccctc catgtcatcg caaaggctga ggagatcagt atttcaccac acctttgtgc 120
 ttcacttagg tatcgcaagg aaggaaaact gtctccatct gaagaggaca tagccatgta 180
 tctgctttgt tctcttcttg atttccacgt tccccaaaat gggcaggggt ggcttaaaaa 240
 gcaatggaga aaaagttctg gagatggatg atggtgatgt tctcacaaca atataaatgt 300
 acctaatgt acagaactgt acacttaaaa atgcttaaaa tggcaaattt tacnttatgt 360
 atttttgact ctctgtctcc cccaaaaagc aatgaaggct cttccttttc 410

<210> 75
 <211> 357
 <212> DNA
 <213> Homo sapiens

<400> 75
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 ttaactgatg acatggnctt gngaaattcc ttctcctggc tcatcctggc tcaaaagctc 180
 cctactgagc accctgtgac ccactctgc cgccagaaaa caacccccct ttgactgnaa 240
 ttttctttac taccggaatc ctataaaacg gccccccta tttcctttgn tgactotttt 300
 tttggactta agcccactgn attcaaggng aaataaacia gctttatttg ttacacc 357

<210> 76
 <211> 219
 <212> DNA
 <213> Homo sapiens

<400> 76
 tgaccttggg atctcctgaa ggaaaagcat tggagtagaa gtaagagctg actgtgaaag 60
 cctgaggagg agctgcctta ttgttaaggg gtagcaagaa gccagggcgt ggcagtccac 120
 gcctgtaagc ctagcacttt gggaggccaa gatgggagga tcgcttgagc tcaggagctt 180
 gagaccacc cgggtaacat agcgagacct cgtctctac 219

<210> 77
 <211> 401
 <212> DNA
 <213> Homo sapiens

<400> 77
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 aggactacc attggaagat gtgctgggga gaagccagc ccagcaacat gcggcaggac 120
 cacatctcgg cagagctgaa gacagagacg ttgcagcgac aaggacaact ggcattgcctc 180
 acattcctca gtgttgaaaa caataaaagg agggggaatg agagaaaaat caaatttcta 240
 cgaagagatg tcagcagtaa atttaatgca ggtgcaatat tctccaaaca aaggacgttt 300
 tgtttctacc gtctgggctc tgtgaaaacc tgctccacct cctccttgc atgtgttttc 360

ctttttatct gtgtaaggta gattaaaatg ttgataccct t 401

<210> 78
<211> 387
<212> DNA
<213> Homo sapiens

<400> 78
ctgaggactg tatcgagnta caaacgtcac cagcaatgaa tgaaagtagc tgatgccccca 60
catcctcacc agagtgaagt tcatcactaa gacaaagcaa aacagccgga agcagtgaact 120
catgacctga atctccacac tttgggaggc cagcgagggc ggatcacttg agctcaggag 180
tttgagacca tcctgggcat cagacctcat gtctacaacg gaaaaaagac atttagccaa 240
gcgtgtttgt gtgtacctgc agttctagct ccttgggggg ctgagggtgtt agaatggctt 300
cagcccggga ggttgaggct gcagtgaact gagccgtgat cgtcccgtg cactccagcc 360
tggatgtcag agtgagacct ttgtctc 387

<210> 79
<211> 331
<212> DNA
<213> Homo sapiens

<400> 79
aataaaggca actgctgggt gtgataagct cgtgcctgta gtttgggagg ccaaagcaag 60
cagatcactt gagccccgga gtggagacc agcctggata acatcgcaaa atcttgtctc 120
tacaaaacag acaaaaatga ggatcgcttg agccccggag gttgaggctg cagtgaacca 180
cgtttgagcc actacactcc agcctgnata actgagcaag accctgtctc aaaacaaaac 240
aaaacaaaat aaacaaaaaa ggccagcgag gncnattcag nttggactta accaggctna 300
acttgctcaa aaggngggga ctaccagga a 331

<210> 80
<211> 151
<212> DNA
<213> Homo sapiens

<400> 80
agtctcgaac tcctgacctt gtgatccacc cacctcggcc tcccaaagtg ctgggactac 60
aggcatgagc caccacactc ggccaccttc actgattttt tcctttcata tttctcttta 120
taagtcttct attaaaatga aaatgcttca g 151

<210> 81
<211> 305
<212> DNA
<213> Homo sapiens

<400> 81
aaaaaggaaa tgtgatcaac ctaaaccacca agggaagact gtgcatcatc tcatccacaa 60
gacaaacaaa atgcctcttc cagctttgtt acaggaaaaa tcacagatca ataagaaaag 120
ctgatgagaa aacaaagcaa ccagaaaaag gtggcaaac cactgtgt atattgagaa 180
atagaactgt cttcaattag aacaacagat ttgccataat ccataaaatt catgttatga 240
gagtttgaag cagttatgta caatgtttta tactacaaag tagataaaga cctccatcc 300
cacct 305

<210> 82
<211> 329
<212> DNA
<213> Homo sapiens

<400> 82
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agatcacttg agccccggag ttggagacca gcctggataa catcgcaaaa tcttgtctct 120
acaaaacaga caaaaatgag gatcgcttga gccaggagg ttgaggctgc agtgagccac 180
gtttgagcca ctacactcca gcctggataa ctgagcaaga cctgtctca aaacaaaaca 240

aaacaaaata aacaaacaaa aaaaaaangg ccagngaggg caattnagnt nggacttaac 300
caggntnaan tngntnaaaa ggggggggac 329

<210> 83
<211> 443
<212> DNA
<213> Homo sapiens

<400> 83
gaaggacact tctataaaaag acggagttgg ttgtacttcc catgaaacca ttattgaaga 60
cacacatttg cataacagca atgagagaaa aagtagattc ccgaggagaa gcactggaaa 120
ttaacataca acataaatgt gtcataagaa aaagttgaaa attgtggctt ctaatgagtt 180
atctgaaaaa cacttaacat gagatacatc tctcttaata aattgttaag tgcactggac 240
aatattgtca attataggca caaggctgta cagcagatgt ctagaactta ttcatttcat 300
gtaactgaaa ctttatactc attagatagc aacttcccat tccacctct tcatggcccc 360
tggaatcac ctttctttct actctctgct gctatacatt tggctacttt agagatctca 420
tacnaataaa tagaatcatg tgg 443

<210> 84
<211> 352
<212> DNA
<213> Homo sapiens

<400> 84
ggagacacca cctcttttgc tctccaaggc tggttgctgc atctgaaaag acaatctgga 60
acaagaggac agtcaggcca gccacagtgg ttcattgccta taatcccagc actttgggag 120
gccgaggcag gtgaatcact tgaggctcagg agttcgagac cagcctggcc aacatgagga 180
aaccctgtct ctactaaaaa tacaaaaatc agccgggtgt gatggttgca cctgtaatcc 240
cagctactcg ggaggctgag gcaggagaat cgcttaaac caggagggtgg agattgcagt 300
gagccaagat catgccactg cactccagcc tgggtgacaga cgagactccg cc 352

<210> 85
<211> 268
<212> DNA
<213> Homo sapiens

<400> 85
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cctgatgtac aacagttaaa gtgcagagaa accctctgcc aaactttggt gtgctttaaa 120
agttatggca gtcaggctcc ctttactgtc ataactggaa cacctttcac ttttcaaaaag 180
agctggtgta tctgcttgct gtacaactac aaatatatac ttttgattaa gaaagttgag 240
aaaaataaaa agcagtttaa tttagccc 268

<210> 86
<211> 179
<212> DNA
<213> Homo sapiens

<400> 86
gtaacccttc agaattgtga agactgttgt acaaagtaat taatgagctg ccctggatct 60
gaggcaagcg acggaagagt caagatgact aaaagtcttc tgataaaggg tttctttaag 120
gaaaagaaaa tcccacaatg caaccagcaa tggttaatctt caataaatac gctgttaat 179

<210> 87
<211> 362
<212> DNA
<213> Homo sapiens

<400> 87
gactggtgcc cttacaagga gagtaagtac cacctcatca gggccaccct catctaccag 60
agagctctcc ctctgtccat gggcacacag agaattggcc atgtgaggac acagtgagaa 120
gacagccatc tgcaaaccag gaagagagtc ctcaccagaa cccagccctg ccggcacctt 180

gatcttggac	ttccagactc	tggaactgta	ctaaccagaa	gttcaagcta	ggggttggag	240
aaggaaggtc	atacatag	aagcaagaac	ctcaaccct	agaactgcta	tgaaaatcaa	300
acaaaatgct	atttgtaagt	agtcttctg	tgctggacta	aattaaaaga	actttgcagc	360
tc						362

<210> 88
 <211> 431
 <212> DNA
 <213> Homo sapiens

<400> 88						
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cccacaagac	tgccagcgaa	attttgcaga	ctcaagatgt	tccgagagtt	tggaacaatca	120
tcacagtttt	tggacgccta	tctgagacca	tcttctgtga	agttttattca	gctcataagt	180
gtgaataaaaa	aattgctaaa	tgtgaactca	aagagacagt	gcagttttac	atctgagtcc	240
actgaatgca	tcacagaagc	agcatgtgca	gcaacaggag	tccaatagcg	tcaaccacca	300
ggaaacaagg	atcacggagc	atgtgagaaa	atggtaattg	agaaggctga	tcaaggaaca	360
cactaaaatt	ggaggcatga	aacacttggc	gaaatgggtc	catnggtcca	tctggggatc	420
ctgggaacaa	g					431

<210> 89
 <211> 216
 <212> DNA
 <213> Homo sapiens

<400> 89						
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ccacgatgga	nagcaaaggc	cagtttcaca	gacccaaata	catttggcct	ctgaacgaca	120
tggatttgaa	ctgngaggat	ccattttacat	gtggattttc	ttctgcctct	gccgtcccag	180
agacagcatg	accagccact	catcctcctc	ctcctc			216

<210> 90
 <211> 260
 <212> DNA
 <213> Homo sapiens

<400> 90						
tttgcaaatg	atttccaaat	ataatttctc	atcggaatct	cacaaccacc	aaatacgacc	60
aggcattatt	catctgattt	tatagatgag	gaaatcaagg	gtcagagaag	tgatgtgact	120
tgcccaaggc	ccacagatgg	taggtggcaa	agccaggact	tggaatccaa	gataaagaaa	180
actcagtggg	aaggagaagt	ttgtgattaa	atccaattaa	aggaatagag	taaaataaag	240
aacacagtaa	atttctcacc					260

<210> 91
 <211> 265
 <212> DNA
 <213> Homo sapiens

<400> 91						
atgatgaaaa	tgatcctcag	aggagcattg	ttaataatca	aattacccaa	gaatgatgcc	60
tactctgaat	ccagatgtct	gacttcacag	gacaaaacca	ctgcatttac	tgttctcaaa	120
tgatttattt	taagaattta	cgcttctaaa	tttaatccct	gagggtaatg	ggttatgtct	180
taaaatatgt	aatggaacat	taaaaaaatg	aattctttct	tgcttggttt	cggccaaaat	240
gtaataaac	tgaatatcaa	atact				265

<210> 92
 <211> 326
 <212> DNA
 <213> Homo sapiens

<400> 92						
attccctctg	acctgctgcc	cctggccttt	ctcctgcccc	agtggggctt	tagcacaact	60

gaccgctgct	ttcctgcgct	ctgtggccag	ggaactcatg	tggtgaagca	ctctggagtt	120
tggttttgca	aagaagtga	atctacaatg	caaatatcca	gatctccaaa	ccctgggtcaa	180
atggcagtga	ctgaagctca	tgccccacct	cccagctgtg	caaccttggg	gcaagtcact	240
tcacctctct	gggcttcaac	ttcctccttg	gaaagacaga	atgccaaacat	ccatcctgcc	300
tcttgccaag	atgttttata	gactgc				326

<210> 93
 <211> 367
 <212> DNA
 <213> Homo sapiens

<400> 93						
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accttggcct	cccaaagtgc	tggaattaca	gaagggagcc	accatgcctg	gcctggagta	120
tataagtgtc	taagaacctt	gttcaaataa	gaaggaaacca	gaaaaccctt	cgttatagca	180
attgctctct	cttgaaattg	ctccagatcc	ataacatctc	tcttcatgtt	cgggatgtgg	240
atttcatgaa	gatattttga	aggtgctgct	gagacaatgg	ggctttttcta	tataaacaaa	300
gtttttatta	gcttttttgc	ttatctggat	tttactgcta	attaattaaa	gccaataact	360
ttttcag						367

<210> 94
 <211> 371
 <212> DNA
 <213> Homo sapiens

<400> 94						
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ccacaaactc	agcagcttca	aacaaccaaa	atggattctc	tcacagctct	ggaggccaga	120
aggccaacac	tcaagggtga	ctgggaccgt	gctccctctg	aagccccag	ggaagaatga	180
cttccttgcc	cctgccagct	cctgggtgtg	gccggcggtc	ctgctcgtct	cttggcttgt	240
agacacatct	ctcccatctc	tgctccacc	accgcgtggc	cttctctgtg	tgtctgtgtc	300
cagatttccc	tcatataagg	gcacagtc	ttggactggg	gccatcctca	tacaacatgc	360
tgtagcctt	g					371

<210> 95
 <211> 415
 <212> DNA
 <213> Homo sapiens

<400> 95						
gtcaaatctg	gatactctct	gctgaagaca	accaatatta	atgaatcaca	ctacagagtc	60
attgtctacg	atcccaaagg	aaacaataat	gcgagtacaa	caaattcttc	ttgcaagaga	120
aaatcctgca	aaactactta	acagaataac	actggtcaat	gctctaatca	tacatttgtt	180
aaaccttata	taatgttttc	aaatatgcat	gcaatccagg	tgacagctta	actaaaaatt	240
cagtctaatt	ttattttcag	tttaggttct	tgagacaaac	atctttgcat	aaatatttgc	300
ctcactacta	gcctctctcc	atataagaaa	ccatcatttc	tcttaaaaaa	aaaccacaag	360
ttgttttatt	tccacaatag	gnatctaaaa	gatcattttt	aaaaaaaggc	agctt	415

<210> 96
 <211> 407
 <212> DNA
 <213> Homo sapiens

<400> 96						
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gatattgtcag	caatgctggt	ggtgccagag	gtttctgaag	ggtctcactg	tggtgcctat	120
gctggagtgc	agtggcaaca	tctcggtcca	ctgcaacctc	tgctttccgg	acttaaacga	180
ccctcgatcc	tcccacctca	gcctcccag	tagctgggac	cacaggtgca	taccacgaag	240
cccggtaat	ttttttgtgt	ttgtggtaaa	gacgggcgtt	tcacatgtt	actgaggctg	300
gtctcaaaact	cctgagctca	agtgattttac	acgcctcagc	ctcccaatgt	atattttctt	360
tgcttccaaa	atgattgttg	agagtaaaagc	ttttgatgta	cacatat		407

<210> 97
 <211> 306
 <212> DNA
 <213> Homo sapiens

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<400> 97
agtggntgag gaattgtcaa ttgcttcact aagtaccatt aatacggcaa gatagcagta      60
atcagttcca cagaagtcac atcatttctca ccctgggatt gntaagatct agacatggtc      120
ttgctgtatt gccctcaaac tcctggcctc aagtgatcct cctgcctcgg cttcccaaata      180
tacaggctgg acttcatgtg gtatagcatt tcttaaaagt ctcaaagaag tcaactctgt      240
aatataaagt cctcatatga atngattcta agttgtagnc agccactaat aaacacacat      300
gcttac                                           306
  
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<210> 98
 <211> 209
 <212> DNA
 <213> Homo sapiens

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<400> 98
ctgntgcgct cagccttgaa caccctcccg accttggggc tctgctgccc caccgggagc      60
ccccatttca acngatgcag acaccccaaa gcccttccc aacagcccga agagaagccc      120
tcctctgaag agacagcaga gaagcagagc cccctggggac gccccccaag acctccacgt      180
ctccccagca cccggcgggg ggggtggtgc                                           209
  
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<210> 99
 <211> 229
 <212> DNA
 <213> Homo sapiens

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<400> 99
aaggctaaag ctctataacc attgaaagct ggctggggga aaagaagaag aggcaaaaag      60
atcaactgaa gaataaactg ctgtcattgg cacaaaagaa taccacaaag attatttaca      120
aaactcgaat caggagtaga acagacctcc atgtggaagt tcaattatgc taagaggaaa      180
gaggaaaggg gaagagttta cagaaataaa ttaatgatga tgataaact                      229
  
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<210> 100
 <211> 308
 <212> DNA
 <213> Homo sapiens

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<400> 100
atgangtgct gtgctggaca acgctgcctt tgggcttcgg cttggaccgt ggggaggcag      60
agcaatgatg ttgttaggat taaatgacaa ccagccttct gttatttctg gaagattttg      120
gaacttccag agaaggcagg agtgagctgt cggggaagga acgacgtctc cttcaggaat      180
tgttgccagc acttgggtca tgaagccctt ctctgtgtct cctccgactg gaatactcat      240
cacgtcctct tagctgataa caatagctga ctttaataag tgtagnctt cctatatatg      300
tgtatgtg                                           308
  
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<210> 101
 <211> 339
 <212> DNA
 <213> Homo sapiens

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<400> 101
ttcatgaaat gggaagattt tgctggatta tctgggttggg ctctaaatgt attcaaagtg      60
ttcttagaag aaagaggcan agaaagagct gacacacaga agagacggtg atgtgaagac      120
agtggagaga gagagatctg aaatgctgcc cttgaagact ggagtgaagt ggccacaagc      180
caaggaatgc ctgcagcctc cagaagctgg aaaagacaag caatggattc tccaccagat      240
cctccagagg gagtgcagcg ctgccaacac tttgaactca gccagttat aattattttg      300
gacttctcca gaactataaa agaataaata tttgaaacc                                           339
  
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<210> 102

<211> 75
 <212> DNA
 <213> Homo sapiens

<400> 102
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 taaaccaaaa tacgg 75

<210> 103
 <211> 489
 <212> DNA
 <213> Homo sapiens

<400> 103
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 ccagggagca ccccgatca cagacactgt ggccccgcaa tggatgggag cttccattgc 120
 tggagctcac ttttctgct ctaactgcag gagctgggaa tttgaactgt ttctctcaact 180
 tctgggtccc agcatttaga acagggctcc actcacagca gccactattg ctgaagaagc 240
 aaatcccgcg ggattgcttg agtcctggca cgtgtgaaat gcctgccaag aactgcagag 300
 gacagagaca cagtgtctca aaagggttga atggcaactt tatcatggac attttgggtga 360
 ttacaatatc tacatttcct ggggggtctc agaatcacag aaattatttc aagttagtcc 420
 gaggtgctc aacgctgagg tcaaaacatc tgagagaaaa ggtaagtaa aaaatctggt 480
 tgtttctat 489

<210> 104
 <211> 390
 <212> DNA
 <213> Homo sapiens

<400> 104
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 cccctgngac ctgcacgtac acatncagat ggccggaagc anctgaagat ccacaaaaga 120
 agcgaaanta gccttaactg atgacattcc accntggtna ntgntcctg cccactcta 180
 actgagntga tatattctcc cctncacccc acttaagaag gtactttgca atattcttcc 240
 cactcttgag aatgnaaatt tgtacaccta tccccaaacc tataaggaac taatgataat 300
 cccccccacc ctttggctgg actctctttt tcaanactca ggccccacct tgcnnccccn 360
 aggtggaaat aaacagccct tgttgcttca 390

<210> 105
 <211> 361
 <212> DNA
 <213> Homo sapiens

<400> 105
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 tgnnnngcnt aactgaanan attgcaccac aannnaagt natatggnt gttcctgcct 120
 taactgatga catgggcttg tgaaatttct tctccaggct natnctggnt caaaagctcc 180
 cctactgagc accctgtgac cccactctg cccgccanan aacaaccccc ctttgactgt 240
 aattttcctt tacctaccg aatcctataa aacggcccca cccctatctc cctttgctga 300
 ctctcttttc ggactcagcc cacctgcatt cagggtgaaat aaacagcttt attgctcaca 360
 c 361

<210> 106
 <211> 433
 <212> DNA
 <213> Homo sapiens

<400> 106
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 ttcctgcctt aactgatgac atttcaccac aaaagaagtg aaaatggcct gttcctgcct 120
 taactgatga catggtcttg tgaaattcct tctccaggct catcctggct caaaagctcc 180
 cctactgagc accctgtgac cccactctg cccgccagag aacaaccccc ctttgactgt 240

aattttcctt	tacctaccgc	aatcctataa	aacggcccca	cccctatctc	cctttgctga	300
ctctcttttc	ggactcagcc	cacctgcata	caggtgaaat	aaacagcttt	attgctcaca	360
caaaaaaaaa	aaggncnggg	nggccaattc	agntnggact	taaccaggnt	gaacttgnnn	420
aaaagggggg	gac					433

<210> 107
 <211> 387
 <212> DNA
 <213> Homo sapiens

<400> 107						
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acatatcttg	tcatgtcata	gctgaagagc	tgccacctag	acctgttcct	gctgcttcac	120
tctggttttc	ccatggccca	tatggaaggg	aaccagggtt	gggctaccac	cattttttgc	180
tcccagattg	gaggatgggt	gaggcctctc	catcccagct	tccctggata	acttagttta	240
agcttatgac	acatattctc	tgaaaggcaa	acccatgagg	tgtattcaca	aagaggacat	300
caaatcccac	ttggagtctt	gtgtcattaa	accattacag	tcagccctcc	atatccctaa	360
gntctgcata	catggattca	accaccc				387

<210> 108
 <211> 327
 <212> DNA
 <213> Homo sapiens

<400> 108						
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aaagtccatc	ttccactttc	tctttggaaa	agaatgctg	aacagtctca	ctactgcccc	120
tcacctattc	cctttcactg	acatctcccc	aagcccaact	atcattttct	gcctttaaaa	180
aataactgga	atztatataa	atcaatccaa	cgcctatcat	agaccttggt	tcacagtatg	240
cattaaaata	tgtattgggt	gatcattcct	tctgcagtgt	caagcactgt	gccaggcaac	300
agtgattaaa	aataatgaat	gaaaccc				327

<210> 109
 <211> 287
 <212> DNA
 <213> Homo sapiens

<400> 109						
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catgggacaa	ggagctgnga	ccagtggcca	gcaagaaact	gaagccctta	gtttaacagt	120
ctacaaggac	ctgaacactg	ccaacaacca	catgagcttg	gaaacagatt	cttcctcagt	180
caaggtttna	gatgagaact	tcatccanag	tagcactagg	attgtgctgt	acctgggtctc	240
ctgacagaga	atctctgaaa	taataaatgt	gtattgtttt	aagccag		287

<210> 110
 <211> 129
 <212> DNA
 <213> Homo sapiens

<400> 110						
actgtatccc	agccactatt	tttccctcaa	cgtcactaaa	tgcaagggaa	taatgaaacc	60
acaggagaga	aaaaagcagc	tgtctgaata	aaagaagaaa	gaggtagatg	cacagaaaca	120
gacggacat						129

<210> 111
 <211> 462
 <212> DNA
 <213> Homo sapiens

<400> 111						
tttgccaacc	atggattaca	gagcaaacaa	aacaaaaccc	caaggacaaa	ataaagaagc	60
agaacacctt	gaagaaagag	ctgattccaa	ctctgaagtg	ggaaatgtat	aggatgggag	120

tggtagaaga	tcagaaagct	atcaaaaaca	attgaggaca	tggtcaaaga	actcaggtga	180
caaaagagga	tcccactggc	caaaaatggg	acaatgaagt	cttatccatc	ctcctcttta	240
ctgtggtccc	cagaactgtg	tottgaacat	ggcaaaaact	tggtcagctg	tcattgagaag	300
ttgagtgatg	agaccttgag	cgggaatcat	caatgaaagg	gccaaggaga	tgagatggag	360
cattgtaatc	aacaaaagtg	cttaacccaa	gaaggggtgn	cccttattta	attacctttg	420
anaatgcttg	tnttttaacg	ttacaaggta	tggaagaca	at		462

<210> 112
 <211> 257
 <212> DNA
 <213> Homo sapiens

<400> 112						
acatgccatg	tgctgggcat	aggaagtgct	gtttcagcca	ccccaaggag	caaccatgag	60
tccagcgtgc	ctgctcgtca	cacctcctcc	taccctctgag	cgccacttct	gagttgctca	120
tcagcatccc	cagctccag	atggctgcct	ttgtcccctg	ctttcacagc	atggatgtga	180
aaggagcagt	agattaagaa	agaccaaga	taaccctgta	aagatattca	ctgtgggattg	240
acaataaaag	ccattag					257

<210> 113
 <211> 91
 <212> DNA
 <213> Homo sapiens

<400> 113						
agacaatctt	actatgttgc	ctaagctgat	cttgaaatcc	ggaactcaag	taattctccc	60
cctcccagag	tgctaagatt	acagttaaaa	g			91

<210> 114
 <211> 205
 <212> DNA
 <213> Homo sapiens

<400> 114						
aagacaacgc	gaaaacagaa	gcnnnggatca	gagngatgca	gtcacaaatt	ncacaatncc	60
agggcnnnca	acagcagcta	ggagaggcaa	aaatangaac	cctgattctt	ccctgcanc	120
cctggcagga	gtgnngttct	actgggggtt	ggactttctaa	cctccaaaat	tgnaaaagaa	180
taaatttcng	ttgcattaag	tcctc				205

<210> 115
 <211> 464
 <212> DNA
 <213> Homo sapiens

<400> 115						
cccttggtgtt	tttgaggttn	taaaactgaa	gccatgtggt	cacgttttaa	tggcagagta	60
ttaatcaact	gaaaatnant	atttntgaaa	tccaagggca	ataaaaccct	gtggaagcnc	120
ccaccccccta	cccattactc	aaattcagac	acnannagac	tgctgtctgtc	ttcatcctca	180
ccatgatgac	ccttcatttc	aagcaatgga	atattttacag	catcatagtg	gagcttgggg	240
tacaagtggg	gcatgggtgt	gatagccctg	tggtcgggtg	gacactgccc	tggtgggtggc	300
aactgggtgca	tgcttcagtt	ctcctccttg	atcctcagcc	acgctcaagt	cgggtgtttgc	360
tgcgcaactc	agcgtcgtg	ctgcccctgc	taatgagaat	tacattgtca	tgtaataagt	420
accttccttg	agtncatgaa	aataaaaaaa	aagtcttaaa	aagg		464

<210> 116
 <211> 288
 <212> DNA
 <213> Homo sapiens

<400> 116						
gtgagaagaa	tacttgcatg	cttctgcttt	ggtccctttg	cacagcagct	cttagaacat	60
aactgcctca	ctcggagaaa	gctggagaga	cccacaagga	gaaaaaagga	ggctcccagc	120

caacaaccag	cacagctttg	cagcaaaatg	agttggccat	cttagaagtg	ggctggctag	180
atcccgttga	accacccac	ctactcttcc	tgaacagac	acaagccatc	ccgctgagcc	240
ctagtcaa	tacagattca	tatgcaaaat	aaatgcttat	tattttttt		288

<210> 117
 <211> 419
 <212> DNA
 <213> Homo sapiens

<400> 117						
ggggatattt	ttttttcata	anacctgcct	gtgatgtttc	tctgccgtga	atcatgtcta	60
tatcctcaca	aaggataaaa	accaaagcca	ctagagcaga	gtcttttgat	ttttctgaat	120
atggaaagca	nccatgcatt	acattgaagc	atattccaac	gtcaggggac	agagcactgc	180
ttcctgtcca	tgtaaccgca	aattccgtgc	tgagtgttac	tgcgccaaag	gacatgttag	240
gatgccacaa	cggttctcat	ctggtcctgt	atactcacag	gctgatgtng	tacactagaa	300
agggagggct	ctttccaagt	tacagaactt	attttgcaat	atttcctggg	aaagaattct	360
gctacaagct	ttaatcaatg	taagaaatgc	tgtaactaca	ttaaagtaaa	ctgtacatg	419

<210> 118
 <211> 469
 <212> DNA
 <213> Homo sapiens

<400> 118						
aagcgccctc	gagaagtgtc	taaaggagac	aagttgatag	ccaaacaaca	gttttgatt	60
cactgactga	ttatgaaaga	agcagtagac	tggtatcaag	aatcagtcag	catgttcttg	120
agcatcctga	gggcagggac	cagccttgac	gaccaccct	ggcagaggct	ccccagcagc	180
agctgctctg	acgagatgtg	ctcccaggag	agagcaacac	tgtgtgggga	aagcccagct	240
ctgagaggcg	gagaaaatgg	gaagatcacc	acctaggtgg	gagggcggag	aaagggataa	300
agaggagtac	aaaataaaga	tgaccttctt	gcctaccagc	aggctgagaa	cagatggggg	360
agatcaactg	ttagaaatat	tttagagtgc	agcaaaccac	catggcgcat	gtgtcctgtg	420
tacaaacctg	cacgttctgc	acatgtttcc	caaacnttaa	ataaattaa		469

<210> 119
 <211> 349
 <212> DNA
 <213> Homo sapiens

<400> 119						
atcccatgga	gcggatggag	cacatgagcc	aagggtaggc	gggctcagta	aagaaaagcc	60
caaatctctc	ttcagctgta	agttggccct	tactgggct	gcactgacca	gacctgaacc	120
tgactatgtc	atcatgactg	atgccaatgg	gttcatatga	ccattgccat	tggtcaccgt	180
attagatatg	gtgacatcac	tttacacact	tctgagtctn	tccaggcaac	ttgtatgtag	240
tgtgcagtct	gaagcaatgt	ctaactctctc	agaagaagtt	ctcaaaggaa	tgtttcctaaa	300
aggaccattt	ttttccgata	tattggaaaa	taaaggctca	cctaaaaat		349

<210> 120
 <211> 476
 <212> DNA
 <213> Homo sapiens

<400> 120						
gaagcacctg	caggagacaa	gctctcgagg	aatttcta	taaggacttc	ttgccaaagg	60
cacatcacca	cactgacatg	cctcatgacc	tgggtaaata	caagatggaa	aaattgagac	120
ccaggagggt	tatttaccat	gccagaactt	gaaccacagta	aagatgggct	ttcataatgt	180
tggccaggct	ggtctcgaac	tctgacctc	aagtgatcct	tctgcctcag	cctttcaaag	240
tgctaggagt	acaggtataa	cattggacaa	aagaaaaaaa	attgagaaca	ggggaaagaa	300
gtttccattg	tctctgaggc	cttcataaag	agcgaatcaa	gaactgacct	tatttctcag	360
atctggatgt	aaacatgtac	tctttctgcc	tcctgcatct	gtgacctcac	catgcccagc	420
ataagcttat	gctgacccca	aagtgtggca	gtattattnc	aactcaacaa	gtttgg	476

<210> 121

<211> 448
 <212> DNA
 <213> Homo sapiens

<400> 121
 attgaagatg tcctggatag tggtatatat atgagcctgt gttttcagac tttatgaaca 60
 ccttgaaatg agatagaaag tcatttggag ggacaactga atgacacact tctgttcaca 120
 ggtaaccagg accacaagga accacaacag ggaggattac aggattgtgt tatcacctgg 180
 aaaatcttga gataggaaaag tacatthttcc aggttccttc ttcctctggc ttccagacag 240
 gttcagccaa tggaaaacac tgggtggaaa ttgaagtaca ggaggaaaaca agaagccaaa 300
 gttcattgaa aagttcagga aagaagaaag aagaattcat tgaaagaaga aaagaacagc 360
 agtatggcag gngataaacc ccaagthttt gggtccnnnn nnnnnnnnnn nnnnnnnnnn 420
 nnnnaaaagg gnnccggggg gcctthtt 448

<210> 122
 <211> 221
 <212> DNA
 <213> Homo sapiens

<400> 122
 ccaaccttcc agccagagga ggctctgtga cccagttcta cccaaacaga cccaaacaga 60
 agcacctgac aagaaagtgg ttatgtttct agagctgcat cagctattta taacctatgat 120
 ggcaagtccc agagaactgg tcttgccatc actgagcagt tgaaccaata ccagcatcac 180
 caactthtct gtatatgaga aaaataaact ctattthttt t 221

<210> 123
 <211> 389
 <212> DNA
 <213> Homo sapiens

<400> 123
 gaacccccgg agcttctcgc atcgggtggg accggcatcc ggtgagaccg cgggtggctct 60
 ctggggctga aaattccaag cagagtagcc cgaggaatcc agccatccc gaggggttcag 120
 aaatgcaaat cagggtctgtg tattcacagc ctggactgga gatcgaccaa aaactatgca 180
 gggctcaccc ttgcggggcg gcggctaaat ttaggaaacc aaccatctgg agaatgcagg 240
 catcagaagc ccctgcagct aggaggatca atttcaagtt cattthttatt cactgttcat 300
 agatctccca gthtttctca gcgtgttcaa gctggaaaagg atttcagaga ttgtgtcacc 360
 tagattthatt ttacagaagg aggaactgt 389

<210> 124
 <211> 261
 <212> DNA
 <213> Homo sapiens

<400> 124
 aagacaaggc cgtggctatg ttgccaagc tgggtctcaa ctctctgggt taaacgatcc 60
 tcctgccttg gcctcccaat gtgctgggat tacaggcatg agccactgtg cccagccctg 120
 aaacaatatt cttgatacat aaagaacttc tgtaagtcat taagaaaaac actaacaatg 180
 taaatattaa aggacataaa atagctaag taaaaaagt agaaatgtta cagttaataa 240
 acaggagaaa tgcttaacct c 261

<210> 125
 <211> 454
 <212> DNA
 <213> Homo sapiens

<400> 125
 gtggggctct tcagtggaga agtgtggaga aggaaaggag gacctggact gcagggtggag 60
 gaggaccaag gaggctcttg taatatcaag atcaagcgtg ataagatggg gthttgtctat 120
 gttgcccggg ctggtctcga actcctgggg tcaagtgatc tgtccacctc ggctcccaa 180
 attgctggga ttacagacat gagccaccgt gtgcagcctg cctctgtcct tctgaaaaaa 240
 agatggtaca gtcaagatga cctagctgta acctggctac tagaggacca aggagaaaaa 300

taaacttcta	ccacgctttc	gaaaacaagc	actcaaactc	aggagatact	tgattgaagt	360
tgaaaaaagg	ggngcattcc	ccaaggcagt	accctcatga	atgggattag	tgctctttaa	420
taaaagagac	ccaagagagg	tcccttgctc	cttc			454

<210> 126
 <211> 238
 <212> DNA
 <213> Homo sapiens

<400> 126						
accctgaatg	ccaacaacca	gtttgaagac	ccccacagag	gaacggatca	gcatgagaat	60
gcagggtggt	cacctccctg	tcccatgttc	accctgcatt	tttcgaccaa	tcaacaaccg	120
ccaagcctgc	ccctttccaa	aacccttaaa	aactctaacc	caaactcctc	agagagatgg	180
atttgagggt	tcctcccctc	tcattcggtg	gccctttgat	taaacctttc	tctgctgc	238

<210> 127
 <211> 208
 <212> DNA
 <213> Homo sapiens

<400> 127						
gacatccttc	ccattgacac	tggagggggc	aactacatgt	tttaatcaga	gcccacagct	60
gcccacaccc	actgcagagt	gagctactct	ccaccaaccc	tgcagccctg	aagttttctgt	120
gaccactgaa	gaggcctggt	ttcagactta	gggtcaaaagt	gtgggtgacc	tccaacacct	180
actgtagtga	aggaataaat	gtcaatag				208

<210> 128
 <211> 384
 <212> DNA
 <213> Homo sapiens

<400> 128						
gcttcactga	gaagatgaac	cngccgatga	ggtgtgcaga	gaactttggc	tgcacaagtt	60
aagaggaaga	ggctgagtct	cagctcagag	agtgtctggt	atgccaaagca	cagcagagct	120
gccagaggga	tctacttgga	atctggggag	gccctgggga	gactaactgg	tacaatttaa	180
agagatgcaa	agcaaagtgt	atgcggggca	atcatgtgaa	aagcctgctg	ccttacagga	240
tggactccag	ctgctcagtg	ggacgggctg	ttgggggctg	ggttttggta	gggcaagagg	300
gccccggatg	gagtgatgga	cactctaact	cactactccg	ccgtccaata	cagtccagat	360
tgnttaacaa	ctcttaaaaa	taaa				384

<210> 129
 <211> 356
 <212> DNA
 <213> Homo sapiens

<400> 129						
acggaatctt	gctctgctgc	ccaagctgga	gtgcaatggc	acgatctcag	ctcactgcaa	60
cctccgcctc	ctgggttcaa	gcaattctcc	tgccacagcc	tcccaaccag	ctgggattac	120
aggcaccac	gaccacgccc	ggctaatttt	tgtattttta	gtagagatgg	ggtttcacca	180
tgtnggccag	gctggtttca	aactcctgac	ctcgtgatcc	gcccaccttg	gcctcccaaa	240
gtgctgagac	tacaggcatg	agccaccgcg	cccagccaag	cagacacttt	tctaatacat	300
tttctgttca	ttgtacaaat	taattcttaa	tgaatgaaga	aattatttta	atctac	356

<210> 130
 <211> 252
 <212> DNA
 <213> Homo sapiens

<400> 130						
gccctgcact	cgatggatca	gctggcacca	cccagatcaa	taaactggct	catctggtct	60
tgtggcctcc	atccaagtac	caactcagtg	caagaagaca	gcttcgaccc	cgtatgattt	120
aatctccaac	ctgaccaatc	agcactccct	actccctggc	cccctaccca	ccaaataatc	180

ctcaaaaaaa cccagtcctcc aaatttttcag gaagactgat ttgagtaata ataaaaactct 240
gggtctcccgt cc 252

<210> 131
<211> 456
<212> DNA
<213> Homo sapiens

<400> 131
tgtgaggata caactgggaa ctaaagctgg aagatgccag acattcagca gggagttccc 60
tcatcagcag ctggctaact ggggaactga aagtcacaag gcgctcgttt ctgataactc 120
catgaaaatt cactctgggt cagaaatcaa tctttggagt tctgaacatg cagcttttct 180
catgggcctt ttggagaaca atcagctact cagccatcag agcctttttt gctggatggc 240
aggcaggaac tgacagcaaa ccatcgtctc tacaacacgc agaagatcag caccaagtct 300
ccattctccg aaaacatgtg tccatgcagc tctcccangg gaggtctgcg ctgcagtgga 360
angccccaag aagcgtggga acccancctt atcgcatgaa ggaaacncag agttgtacct 420
ccagatgcca ggcggagcgg cgacgtgacg cacggt 456

<210> 132
<211> 462
<212> DNA
<213> Homo sapiens

<400> 132
atggctcacc tgaaatttct gacaacctgc ttcagctggg attaatctct ttgaagtga 60
atcagtttaa ctgaggaatc aatttgcttc cttccatata tgccaaggaa aaactgtaca 120
tagacattga cccacaatac ctggttgacc acgggatccg caagagatgt ccaaattatg 180
aacttcatt aaaaaaaaaa ggtggttcta tggctgcctg gaatggccat atttaattgc 240
tccccagga aatagcattt attgttaaac ttgctagaaa cataacaaaa acgtaaatgc 300
taatctttaa aataagcagg actcctatca catccttctc ttgnggcttt ttccctata 360
cccctgcttt gggaaccggc ttgtttggan tngaaaaagg ctctggaaca ngggattctc 420
acctcancac tgttnacatg tgggacccaa aattttggga aa 462

<210> 133
<211> 356
<212> DNA
<213> Homo sapiens

<400> 133
gggcattcag nataagccat catataccct gngaccngcn cgcncacntc tcagatggcc 60
ggttcctgcc ttaaccgatg acattncacc acaaaagaag tgaaantggc ctgttctctgc 120
cttaactgat gacatggtct tgtgaaattc cttctcctgg ctcatcctgg ctcaaaagct 180
cccctactga gcaccctgtg acccccactc tgcccgccag agaacaaccc ccctttgact 240
gtaattttcc ttacctacc cgaatcctat aaaacggccc caccctatc tccctttgct 300
gactctcttt tcggactcag cccacctgca tccaggtgaa ataaacagct ttattg 356

<210> 134
<211> 245
<212> DNA
<213> Homo sapiens

<400> 134
aaggagctga gtctccccag aagaggaagt ttcaactgag cgattctctg acagaacatc 60
gtggattgag aggaaataag aatgggtgtg cctgcttttag gattacacag tgctggacct 120
ttgaggaagg agaagcagag atggatagaa ttgtttgtggc agaactgagc ttgtatactt 180
ggtcctgtgg agggatatcta ctcttcttcc agctgcgtag ggtaaataaa ggtttttgta 240
aagct 245

<210> 135
<211> 385
<212> DNA
<213> Homo sapiens

<400> 135
attgttcaaa gaaacactgg gaactttccc ctccctgagg aacttccata gatgtacacc 60
tttgggtctcc atcccaaact tgctgacctg tgattgttca tccactgcca gccatctctg 120
tcctccacct gcacctggga cctgttgccc tgcacccatg gacaatctcg gcttccatcc 180
agctccactt tgcgctctct ccactcttga atcgcatgaa cccaaccaac tgggtcatgt 240
gtttattttt catttcttct ttttgttcta tgtaagtgtt tgtttatttt ttaacctttt 300
tacttgcttt gaatcctttt tggaaataga tgagggtctaa attaaaattg taataaataa 360
cacccaacat agccttttta aaagt 385

<210> 136
<211> 400
<212> DNA
<213> Homo sapiens

<400> 136
gacgtctggg gagctcctgc attaagtcac gaactgaggc tggcactgca cagagatgga 60
acctgatgaa acggccccat ttgagcgctt gctgtatcgc gttggctctg ctctctgcag 120
ctgtgctcca agatgagcct ttcagacatc gctccctaata agctccatct cccccagtcc 180
aggaggatgc gcattcctct cctcattcac atgcaccact tcaagccatc tgcacgctct 240
acaggggact tgccgcctaa catcctaatt tgcaacccca tccaaatcct ctgctggaat 300
ctcactattt gcaccactta cgctccngga gcgtgaaaca gaagggccag tcctcttgct 360
tctttattct aagtgnntaa tacagattcc atgggcttgg 400

<210> 137
<211> 216
<212> DNA
<213> Homo sapiens

<400> 137
gtgggggtctt tcaatctgga tggactccga tntaaccggt gtccttaca gaagagaaga 60
caggacacgc acacaaagcg agggtcagcc atgtgaggac agtgagaagg cggccgtcna 120
cacgccaagg agagaggcct gggaagaaac caaccttaca ccttgacatc agacttctgg 180
tctccaaaac ttaggaaaaa taaatttctc ttgttt 216

<210> 138
<211> 450
<212> DNA
<213> Homo sapiens

<400> 138
atatgacatt ggatagtgtt ttggacactt ctgcccagac atccatactc caccactcaa 60
tagctgtctc ttcaggctag taatctcata tgtgttggga caactgagct tccagaatga 120
agagggcaaa ctgctgccag acagagtgtc actgtatttg ccaggctgga atggagtggg 180
gtaatcttgg ctactgcaa cctccgcctt ctgggggttc aagcgattct catgcctcag 240
cctcccagac aggcgcacaa caccacgccc ggctaatttt tgtattttta gtagagatgg 300
ggttttgcta tgttggccag gctggtctga cactcctagc ctcaagtctg gtctgcctgt 360
cctgggctnt taaaagncct aggattacag gcntganccc cgacccagnc ctgattttat 420
ctcttgatca tctggattaa actgtaccaa 450

<210> 139
<211> 330
<212> DNA
<213> Homo sapiens

<400> 139
gaaacctgcc ggaattctcc ttcttcccc gtcttcacac agctgtgacc ccgaaccggt 60
ggagtatcgc tccttgaggg gctcctgcag cacctggtac ttggccttgg tgatattggac 120
cacttgattc aacactcttc ctctgggtga atgggacatc cctgaaggca ggaccaatgg 180
cccgtcatt ctccagagcc tggctcatca tgagcccttg aggtactaat tgaaggagta 240
aattcacatt ctccctggac atttctttc actctttctg tgcatgctaa tttactttct 300
ctagtaataa taaatgtcat tttgttttac 330

<210> 140
 <211> 236
 <212> DNA
 <213> Homo sapiens

<400> 140
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 taggaacgag gaagcaggctc ctcaccagac aatgaatctg ctggcgctt gatcttggat 120
 gtccagcctc cagaactgtg agaaataaat gtcttttgtt tgtaagcaaa aaaaaaaggc 180
 cngcgaggcc aattnagctt ggacttaacc aggtggaact tgntcaaaaag gggggg 236

<210> 141
 <211> 250
 <212> DNA
 <213> Homo sapiens

<400> 141
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 gagagagtgg acaaaatggc tcttgtcacc aatggaatgc tctacagcaa ttcaaaagaa 120
 agaaacacct ctacatatcg atggaaataa acaaaaacta ggtgcaatgt ggtgtcctgg 180
 atgaatcctg gaacagaagg agaacatacg aggagaaact gttaaagtcc aaataaattc 240
 tggaaactttg 250

<210> 142
 <211> 313
 <212> DNA
 <213> Homo sapiens

<400> 142
 gattttgaag cataaggctc atctgttggg ggaaggcaag aagaatcagt tcttctctcg 60
 agcacggccc attcatctag actcacgcaa tgactgtgat tccaaaagac tgaccaaaaa 120
 ttaccaagtg ggcaggctac tggggacaat tccggaaaca tttctaggaa gactggaaga 180
 aatacagtaa tctagcacat atgcaaaaaga atatcaaaag atgaactgtt ttcacagcc 240
 aacccttatg aatgctaaca tgtccagctc tcttacagtt cgtcgctagg ttaatagagg 300
 cattcaaaaa ttt 313

<210> 143
 <211> 443
 <212> DNA
 <213> Homo sapiens

<400> 143
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 gaaagggctc actttctatt ctctatatatt aacaagatcc catgttttag gtgagcactt 120
 tggtcaccca cttaaatgac gacatttctc agactcactt gtagtagaat ttatagccat 180
 ttgatttagt tttggcctgt gagctgtaag ggaaagtgtt caatgatgca tcaggagagc 240
 ctccttaaaa acaaaaggag aaagtgaagt gagttatatt cccttttttt ttcaccctct 300
 tgcttgatc atggtggatg tgaaagctaa gttctgataa ctggcttggg ccatgagaat 360
 aagggccccg ttgtangggg gggggaaaaa ttngtctgga anaaagaact ngcntctggt 420
 atgacttcat ggagcttctg cca 443

<210> 144
 <211> 342
 <212> DNA
 <213> Homo sapiens

<400> 144
 acggaatctt gctctgctgc ccaagctgga gtgcaatggc acgatctcag ctactgcaa 60
 cctccgcctc ctgggttcaa gcaattctcc tgccacagcc tccaaccag ctgggattac 120
 aggcacccac gaccacgccc ggctaatttt tgtattttta gtagagatgg gggttcacca 180
 tgtnggccag gctggtttca aactcengac ctcgtgatcc gccaccttg gcctccaaa 240
 gtgctgagac tacaggcatg agccaccgcy cccagccaaa gcagacactt tttctaatac 300

atcttctgtt catttgtaca aanttaantnt cttaattga at

342

<210> 145
<211> 393
<212> DNA
<213> Homo sapiens

<400> 145
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acctctgcct cctgggttca agtgattctc cagcctcagc ctcccagagta gctggaatta 120
caggcgtccc ccaccacacc agctaatttt tgtatttttc gtagagacgg gatttcgcca 180
tggtgtccag actgggtccc aacttctggc ctcaggtggg ccgccccct cagcctccca 240
aactgctggg attgcaggtg tgaaccacag tgccggggcc attctttctt tttcttagca 300
tccctatatt agtctgtttt cacgctgcta ataaagacgt acccaagact gggaaaantt 360
attgntnaca aaaaaaaaaa gggcgggggg ggc 393

<210> 146
<211> 281
<212> DNA
<213> Homo sapiens

<400> 146
cgtagcgatg actnccgnan gctnngcaca cnetcgaaat gcgnaangac cnccggctgn 60
gntcgtggac ctgnnncgt nccttttgag caagttcaag cctgggttaa gtccaagctn 120
gaattggcct ccgctaggcc tatatngaaa ttctatatag ggccgctatg ngccaatttc 180
ttttgctttt taccctgggg gaaaggaaat acctcattag aagccacacc ttctggtgta 240
ttttaccccc naattctttc aacaaaggaa aaaaaactgg t 281

<210> 147
<211> 472
<212> DNA
<213> Homo sapiens

<400> 147
gtctaaccat aaaatcatca atactgagaa attaaaaggg gaacatgtca ggctcactc 60
tttctgtatt ggctttcaag agtattgtcc ttgagggaaa gccatctcct tcttgacacc 120
atggctaccc ttagaccctt cgtgaagccc aagatcatct aagatggacc aagaagttta 180
tccttcacca gtcagactga catatcaaaa ttagatgtac gcatatagca gcaaccaga 240
ggcattgaca acaggggtgg gagaaaaatc aaaggcgaga ccttgatccc caacattggt 300
tgtgggagca aaaagaagca aaacacatgc tccccagtg ctttcaaaaa attctgnttc 360
ccnatgtca aaanctgga agtgctgctg atgtgcaaca aatcttactg gctgagattg 420
ctcaacatgc ttctccaaga acgggtaaag ccctgtggag agagtaaccc gg 472

<210> 148
<211> 465
<212> DNA
<213> Homo sapiens

<400> 148
agtcgtcctt gtctactcca ctaccaaagtg ttgaagttct tcaagaatca gtcctttgga 60
ggtgatgtca ttgaaaatga tgagtaggaa actccaagag cgcatttctc cacaaaacca 120
gtgaatacat tggcacaaat tgtcagaatc aattttatat aaattctgga aattagtcaa 180
aggtttatag taaccaagga aacatctttt taaaaagatg gctgaggctg gatgctgtgg 240
cttatacctg taatcccagc actttgagag gccaaaggcg gcagagcatt tgagtcagga 300
gttagagacc agcaaaaaaa attagctggg tgtgtttgag ggcacctgta atccctcagg 360
gaggctgagg cgggagaatc gcttgaacct ggaagatgga ggttgacgtg agccaagatc 420
gtgccacctc actccagcct ggggtgataga gtgagactct gtctc 465

<210> 149
<211> 434
<212> DNA
<213> Homo sapiens

<400> 149
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 tccctgcctt aactgatgac atttcaccac aaaagaagtg aaaatggcct gttcctgcct 120
 taactgatga catgggtcttg tgaaattcct tctcctggct catcctggct caaaagctcc 180
 cctactgagc accctgtgac cccactctg aacgncccca cccctatctc cctttgactgt 240
 aattttcctt tacctaccg aatcctataa aacgncccca cccctatctc cctttgactgt 300
 ctctcttttc ggactcagcc cacctgcac caggtgaaat aaacagcttt attgctcaca 360
 caaaaaaaaa aaggnnnngg gggncnattt antnnggant taancngggn gaaattnttc 420
 aaaagggggg gact 434

<210> 150
 <211> 435
 <212> DNA
 <213> Homo sapiens

<400> 150
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 ttcctgcctt aactgatgac atttcaccac aaaagaagtg aaaatggcct gttcctgcct 120
 taactgatga catgggtcttg tgaaattcct tctcctggct catcctggct caaaagctcc 180
 cctactgagc accctgtgac cccactctg cccgcccagag aacaaccccc ctttgactgt 240
 aattttcctt tacctaccg aatcctataa aacggcccca cccctatctc cctttgactgt 300
 ctctcttttc ggactcagcc cacctgcac caggtgaaat aaacagcttt attgctcaca 360
 aaaaaaaaaa ggnncnngng gncnattnag ntnggnctta accnggnnga actntttcaa 420
 aaggggggga ctccc 435

<210> 151
 <211> 81
 <212> DNA
 <213> Homo sapiens

<400> 151
 aatcaagatt tcaactggatt tcccttgagg tgcacatttc ctggatgatt tccacttgtg 60
 aatagaaga agattcgttg c 81

<210> 152
 <211> 198
 <212> DNA
 <213> Homo sapiens

<400> 152
 aactcccagg ttctccaact acaacagatc tccaaaacaa aacaagcaaa actcagaatc 60
 tgatggaaag ctgtttttta aagacaaaga tgggtgggga aatacaatta atatctactg 120
 acatctacta caccagccac tgtgagggga agtctacatg ttatcttata aaaataaaaa 180
 caccataa ccaccatc 198

<210> 153
 <211> 367
 <212> DNA
 <213> Homo sapiens

<400> 153
 cccaaaccat aaggnccatc tcaccttcac tgcaacaaag aagggttggt aaagctggac 60
 acagatttgc tcggtttcac cctctgatgt gttccacacc acttcacgcc acttttcaaa 120
 aagatgataa aacgtcaggc tgagtagaac agaactgggt gcaaataaat ctctctgaag 180
 ctaacttgcc tctctctacc cctacttccc tctgcaagt cctttgcttt attccccctgc 240
 atgagagaag cagtcaaat tttccattt tcatacctgg attgctgctc aacagcctca 300
 acaactgaga cctgaatgta tccccattt aaagaacct acagaacatt aaaattggtt 360
 cctgagc 367

<210> 154
 <211> 408
 <212> DNA

<213> Homo sapiens

<400> 154

cttttaagtt	tcgggtgacc	atTTTTgccc	caaggcttaa	caaaaccctg	gaaaattggt	60
acaaaagctg	ccaagctcaa	agaggctgaa	agccccatt	gagtgccgaa	gagtcaataa	120
tatctgactc	aaagtcacga	tgattcttcc	gatacacaaa	caaggccaca	actacagaga	180
tcggcaggca	aacgatcact	gctatcacaa	tcccaacata	gagagcaaca	tcatctgaat	240
caggagcggc	tagagaggag	agtgaacat	tgaaccagct	gcttatagaa	atttcccaca	300
gtacacatat	gtattgctat	aattttttca	gacatttact	gcctttttta	taggttaatt	360
tcaaattctat	ttcaaaagct	atataaaatg	gctgtggcct	ttcagtgg		408

<210> 155

<211> 364

<212> DNA

<213> Homo sapiens

<400> 155

attccctaga	gacaaagcca	gtttgcctga	cctctcaacc	aaagaaccct	gacaacttac	60
tccttagcta	gtatctccgt	atatataaag	atgtcaactt	catcatcagt	tcccagaaac	120
cctctccaac	tgagtactgt	attgtatgta	atatgaacaa	aaactatgaa	aggaaagaaa	180
attgaggccc	agagaatgca	aaaaatgatt	aaattcagag	gcaaataact	gagaagtagc	240
aaggccaaga	acaggcatct	aggttacaca	tctctatctt	cgagtgcatt	tttctaaaac	300
aaagggttg	gaccacaaa	ccatcacctg	gaattgcatg	tgtgactgaa	agggaggaaa	360
ctgc						364

<210> 156

<211> 291

<212> DNA

<213> Homo sapiens

<400> 156

actccaaata	agaaaatgaa	agagtacaat	tcaggagatg	aaagaaaagg	aaaatccagg	60
aaattcaatc	agatctacat	gactcatggt	gtgtcaactg	caaatttctg	atttcaaact	120
taaaaaaaaa	gaaacttcaa	ggacccttca	aattatgttc	aagtcatatg	cctgatgaga	180
caattgaatc	acattactgg	actacathtt	ttccccttga	ttcaatctct	tgctgccaca	240
aatatgtttg	ttcagtgtaa	atggagtgat	aaagattgac	ctttctagtt	g	291

<210> 157

<211> 454

<212> DNA

<213> Homo sapiens

<400> 157

ttggggagct	cctgcattaa	gtnananctg	angaaaaaga	gaacagcgag	gagaaaagga	60
taatagagga	aaagagcaga	aagaagccat	ttatatctga	ctgctgctgt	gggagttaca	120
gaatctccct	cttcaacttg	ggcccttttg	agatggtgtc	tctacaaagc	aaagtgaat	180
ggacggtttt	ccagctaatt	tgttttgtat	ggacagccaa	gctggacact	tgacagaccac	240
aaagtctgtg	aatgagaacc	tgggagctga	catgagaaga	attgagctgg	agccttttgc	300
catcactgaa	taaataactt	accctcttga	atccttacct	gtacgactgg	cataagacac	360
cagcctgcct	ttcacacagc	ttgtgatcta	ataagataat	gcttatgtac	ctgttttaat	420
ataaatagac	tgatattaaa	atggcacgta	acac			454

<210> 158

<211> 373

<212> DNA

<213> Homo sapiens

<400> 158

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ccaactgac	aatatgaat	cagtcattcca	cggccgggcg	cagtggctca	tgctgtgaat	120
cccagcactt	tgggaggctg	aggcgggtgg	atcacctgag	gtcaagagtt	ccagaccagc	180
ctggccaaca	tggtgaaacc	ccgtctctac	taaaaatata	aaaactaact	gggcacagtg	240

gcgcacacta	ataccagcta	cttggggaggc	tgaggcagga	gaattgcttg	aatatgggag	300
gcagagggtta	cacagagcca	agattgcgcc	attgtgcgat	ccagcctggg	caacaagagc	360
gaaactccct	ttc					373

<210> 159
 <211> 391
 <212> DNA
 <213> Homo sapiens

<400> 159						
tctggggagc	tcctgnnttn	agntacannt	ntagggcatn	actganagcc	atctatcccc	60
tgngacctgc	acgtacacat	ccagatggcc	ggntcctgcc	ttaactgatg	acatttcacc	120
acaaaagaag	tgaaaatggc	ctgttcctgc	cttaactgat	gacatggtct	tgtgaaattc	180
cttctcctgg	ctcatcctgg	ctcaaaaagct	cccctactga	gcaccctgtg	actcccactc	240
tgcccgccag	agaacaaccc	ccctttgact	gtaattttcc	tttacctacc	cgaatcctat	300
aaaacggccc	caccctatc	tccctttgct	gactctcttt	tcggactcag	cccacctgca	360
tccaggtgaa	ataaacagct	ttattgctca	c			391

<210> 160
 <211> 285
 <212> DNA
 <213> Homo sapiens

<400> 160						
gtgcttatca	cacatgcagt	caatgaacac	ctcacaaatg	caagggttcac	atgcagtctt	60
cgatgaacac	atcgatcgca	tccagcagta	tgtctgtatt	ggaaaagtcc	ttccatagca	120
cccagtaatg	aaaagggaatg	tggcggggag	cagtactgga	cagtaaaact	aaaaacacca	180
ggaagatcac	agtgagatca	gcagagccct	agaatggcaa	atccatgaca	aagaaaattt	240
ctgatgaata	aaaacgtgcc	tgggtccagg	ccagcaattg	gcttc		285

<210> 161
 <211> 180
 <212> DNA
 <213> Homo sapiens

<400> 161						
atgccgtttg	gagtagctac	tttgaggaca	agagacaaaa	agcctgagga	gaaagtcacc	60
atgaaggaaa	cagaaagact	aaacagcatg	cgtgatcttt	gattcagagt	ccccatctca	120
ccctggactg	ccttcctttg	gaattccctt	gtggaaaaaa	aaattaaact	cttatttggg	180

<210> 162
 <211> 235
 <212> DNA
 <213> Homo sapiens

<400> 162						
gccctgcact	ngatggatca	agctggcacc	accagatnn	ataaactggc	tcctctgntc	60
ttgtggcctc	catccaagta	cngactgagn	gctagaagac	agcttcgacc	ncntgtgatt	120
taatctcnna	cctgaccaat	ctgcnctctc	tattgcttgg	ccnctaccc	accaaattat	180
tttcaanaa	accactntc	naggttttca	agaanactga	tttgagtaat	aataa	235

<210> 163
 <211> 588
 <212> DNA
 <213> Homo sapiens

<400> 163						
ggtccaaact	ttaggggtccc	caccttggtta	cttgcaatga	aacggacaca	gtggaagaca	60
gcttggagta	ggaaaaggac	tgaagactgc	agcagccagg	tgaacttcta	ttcgtccatc	120
aagaccacaac	ccaaagaaac	ccacttgaag	ccaggcgagg	gggctcacgc	ctgtaatccc	180
agcactttgg	gaggccgagg	ctggcgggatc	acctgaggtc	gggagttcaa	gaccagcctg	240
gccactatgg	tgaaactccg	tttctactaa	aaataaaaaa	aatagccggg	catcatggtg	300

ggtgcctgta	gtcccagcta	ctcgagaggc	tgaggcagga	taatcgtttg	aacccgggag	360
gcggaagttg	cagtgagctg	agattgcacc	attgcactcc	agcctgggcg	acaaagcgag	420
actccgtctc	aaacaacaac	aacaacaac	tacactctag	tctgggcgac	agagcaagac	480
cctgtcttaa	aaacaacaa	acaaacaagg	aaacccatt	tgtaaactgcc	actaattgga	540
ctatacttct	ggtgggcat	cttcaagctt	cgggcttgaa	taaaccct		588

<210> 164
 <211> 342
 <212> DNA
 <213> Homo sapiens

<400> 164						
agaggaacaa	aatggacaca	gtagttctgt	gcttctcctt	gcaaagtggag	caacaggacc	60
aagatccgaa	gcaatatcag	aggccactgc	accagcagc	agagatgaga	acaactgaag	120
ttccaaatag	atctatggca	agctcaaagc	taagggtcata	aaatgttcta	tgaaagcaag	180
accatgggaa	gaactggcac	atgtgttttg	gaagaggaaa	agggttattga	gtgcctacta	240
tgtgtcaggc	actgagctga	atgcttccac	atattaatgt	tttatacttg	agttttcatt	300
aacagctcta	atctgtacta	ttaataaaa	ataaagaaat	cc		342

<210> 165
 <211> 350
 <212> DNA
 <213> Homo sapiens

<400> 165						
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gagctgtact	gaggaagttt	gtggagtggg	tggtagtgat	agagacatac	tcaggaaggc	120
tggacccatg	gaggctgcc	accttgttca	ttgatttcta	cttgattgat	tccttcttga	180
ttgatttcca	ggatctctga	aacgagaagc	cctccccctt	atatgtttta	tcagatattg	240
caaagtggac	ctgagaacga	gcctgtcgga	agcagattat	gaaggggcct	atgttttgaa	300
tatgctgaac	tgctttggtt	tgtgactggg	gaagattaaa	ggcctacaac		350

<210> 166
 <211> 348
 <212> DNA
 <213> Homo sapiens

<400> 166						
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ttgtatctag	gtggtgccat	ataactactc	ccaccaatgg	aatggaaagt	gatttgagca	120
cctctaggct	gagggagggtg	gaaagtgatg	tgccttctcc	gtgctctctt	cctccatctg	180
ccaaacagac	acaggggact	ccaagaccct	agggaatgga	agagcaaccc	atggaagggg	240
cctgggctgc	tgaatcactc	agggcagggc	tccaccggtg	gagtgaccac	cagctcgaaa	300
cacctatgtt	ggactgagtg	agaaataaac	tctactgtgt	taagccat		348

<210> 167
 <211> 574
 <212> DNA
 <213> Homo sapiens

<400> 167						
gtggnntntgt	ccttttggac	caattatcta	acctgggcct	ggactccatc	taccactgtc	60
ctgcctgggt	cactgcagct	cacttcatct	tctgtgcct	tctctgaaag	ggcccccca	120
aaagtttcct	ggaaactctc	aaacaactga	gaagggtcct	cgacatctga	tttgcccaa	180
acctctatac	attggacatc	ttctgaataa	ggctgtgttg	tatgttggga	caagcaaagg	240
gatggaaatc	aagaattctg	ggttttagtc	ctgactgtca	ctacatggct	gtgttacttc	300
tgactctgtg	aagcagaact	cgggcctcta	gcgtctgcta	gtctagatct	aaagggtgtt	360
cctgagggac	agtttggcct	ggcatgcagg	tacctctgca	gaccacaaca	gtgcaccgaa	420
aacaccccct	cccagcacgc	acacaagtct	ggctcctcag	ccaaacatca	aacaccaaca	480
ctgctgcccc	tgccagatgc	caaagtgaga	taatgtgtgt	tataccctta	agtgnntac	540
aaagagaaaa	gattaataaa	tgttagctat	cctt			574

<210> 168
 <211> 240
 <212> DNA
 <213> Homo sapiens

<400> 168
 catgtgagta ctcagaagac agctgtctgc aactcagaaa gaagtctcac caaaaactga 60
 agcctaccag gaccttgatc ttggacttcc ctgccagcta gaactgtgag aaaataaata 120
 agtacatatt tggtgtttgc accacccagc ctataggatt ttgttatggc agccctagca 180
 gactaataca tgcngtgttt tgatataaat ttattaaaga aacttcttta tttgcttacc 240

<210> 169
 <211> 454
 <212> DNA
 <213> Homo sapiens

<400> 169
 acctcaacat gttttatctg ggagtcttcc tctttcatga cattcacagg aggcctatgg 60
 tgtgccaggc cccgtggaca gcactgtgga cacagatgcg taataacagt tcctaccttc 120
 cagatagaga ggcaagaaag ggctgtggaa gcaaacccaa ggtactaagg aagccgggaa 180
 gagaacctac tctagacttg gaagttgaag gggcgaagaa acattcctag agaagatacc 240
 tgagtcttga aaactgagaa ggaattagta acccaacaga ggtgggaact ttctgaggac 300
 ggagatggag aggaagatgc tgccagctga gggaccacca ttctgaaagc taggagaaag 360
 tgcgcgatgg aaagtgggccc tgagggaaag gctgtaagca cctcactatt aatcacaatt 420
 ctccctatag gaaaataaat gctgtttcta cttc 454

<210> 170
 <211> 262
 <212> DNA
 <213> Homo sapiens

<400> 170
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 aatattctct gcctggaacg cgcattcccc agatatccac gtgggtaact ccctgacctc 120
 ttttgagtct ctgctcaaat gttatctctt cactcacaca caccnttggc actctactca 180
 aatttacaac cagccaccta cccccagcca aaactctgct agaaaaaaac ggtattttacc 240
 ataaagtcatt tgccaagctt gt 262

<210> 171
 <211> 297
 <212> DNA
 <213> Homo sapiens

<400> 171
 atgggtgtttc gctcttattg cccaggctgg agtgcaatga cgtgatcttg actcaccaca 60
 gcctctgcat ccaggattca agctattccc ctgcctcagc ctcccaaaat gctgggatta 120
 taggcgtgag ccgccacgca tggccagcat tcccaatttt taaaaatgaa tgattggcac 180
 aaatcttaga aagccatttt ctgtagattt gaaagcaatg ctattttacat tgttactact 240
 ttcttggttaa atcttgcatg tctgcagtat gtgttgtaat agaaacctaa gattatg 297

<210> 172
 <211> 113
 <212> DNA
 <213> Homo sapiens

<400> 172
 ctggactccg tcccatagat gagctgaagc aaaaggacct tcacacagaa cttttatcat 60
 cagcctgagg aaaagtactc gaaggacaag gccattgggt gggaacttac acc 113

<210> 173
 <211> 466
 <212> DNA

<213> Homo sapiens

<400> 173

cagggcctaa	gctgactttg	caagagatct	cgctaagcct	ttctgcagat	gcttgcccaa	60
tctggctggc	cctgctggag	gatatatgct	gttaaggcaa	ggcaggcaga	ggcagctctg	120
gctcgtctcc	acgtgcactg	gctggctttc	cagagggggac	aatgcacccc	acagaccaca	180
gctgtcattt	ggccatctct	accttcaacc	ttaccaagca	cctggcctca	gcacagattt	240
tcagagaaaa	ctttgaacaa	agcaacccaa	cactgtatct	gtagaattgg	aagagacttg	300
gagccttccg	aatgtgacct	gactgctcaa	atggagaaaat	gagaagtggg	taagcttgag	360
cgcaagctta	cactggnagg	tgggtggttg	aaacgaaaac	ctctggattc	ctattaccag	420
gncaagtntt	actnttcagt	ttatcataca	nggctttaag	gggagc		466

<210> 174

<211> 354

<212> DNA

<213> Homo sapiens

<400> 174

atggagtttc	tctctcgttg	cccagactgg	agtgcattgg	cacgatctca	gctcactgca	60
acctctgcct	cctgggttca	agtgattctc	cagcctcagc	ctcccagagta	gctggaatta	120
cagggcgtccc	ccaccacacc	agctaatttt	tgtatttttc	gtagagacgg	gatttcgcca	180
tgttgccag	actgggtcca	aacttctggc	ctcaggtggg	ccgccccct	cagcctccca	240
aactgctggg	attgcaggtg	tgaaccacag	tgccccggccc	attctttctt	tttcttagca	300
tccctatatt	aagtctgttt	tcacgctgct	aataaagacg	taccaagac	tgag	354

<210> 175

<211> 181

<212> DNA

<213> Homo sapiens

<400> 175

atcctcagtg	tcatatgatg	gctgctgtag	atcctgccaa	agaagataga	gtatcttcat	60
cacaagccag	ttcctgacct	tcaccactaga	ggagctgaac	aaatgtcatg	acaatttaac	120
agaatagagc	tacagaaaga	gctaacagaa	tagagctact	catcatcatc	ctctagcctc	180
c						181

<210> 176

<211> 240

<212> DNA

<213> Homo sapiens

<400> 176

gaaagttgtg	tttttgctcg	tgcactcaag	gcctcgagga	ctttcccccac	ttttttctat	60
ggcacacaga	gttctgcacg	tgaacttctt	gctgggttaac	tggtattgcat	caaaatgatt	120
tctctgtgag	gtactattgc	taccaggata	tcaattacta	tcctaattgtg	gacatttgct	180
ctgatatgca	taacaattga	aatagaaat	aagcctctca	gggcaatcat	ttcaattcac	240

<210> 177

<211> 173

<212> DNA

<213> Homo sapiens

<400> 177

ccaccctcct	cctaactttg	gacagagctt	actccagaag	acagtcttgg	agtagaacac	60
catggaccaa	gtacttgccg	agcatgccca	ctgcctctga	ttgtacatgt	gcaaatactt	120
tctttgccta	ttcagaaatt	agcagaaact	gttgaataaa	gggataaagg	agg	173

<210> 178

<211> 317

<212> DNA

<213> Homo sapiens

<400> 178
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acacaccaac aatggatcca ttctatggct tcacaaagtc aatcttggag aaagaaccgc 120
caaaagctgg cacaagcagt agcaccttta cagtgggcag gaaaacaacc agaagtcttg 180
gggctgcaga gatccaggcc ggcgagaagt ccagagcatc agacaggaag agtttcttgg 240
gggtaggaac agtgactggc acatgcggga taaaagttca tgaaagaagc cgaatcgatt 300
aaaggaaata aaaaggc 317

<210> 179
<211> 170
<212> DNA
<213> Homo sapiens

<400> 179
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ccaagtagct ggaactacag ggctcgactg tgttttatct aagttttaag aatatatatt 120
tcacccaca ccctcttgcc atgagactca ataaaaatat atatacaggc 170

<210> 180
<211> 220
<212> DNA
<213> Homo sapiens

<400> 180
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gaaagagaag cattctgcag gaaccctaga aatgaaacgc aaccagcaag ctgccatttg 120
tccagagaag ctcacactcc ctgggaaatg gaatattggg tctcaacctg aagagtagct 180
ggacagagac aggaattcac aaataaaagc tttaaaagat 220

<210> 181
<211> 360
<212> DNA
<213> Homo sapiens

<400> 181
ggttttcagg gccaccacca tccagacctt cggaaaccct gcactggacc aacacccatg 60
tccccaggac acctgacctt aaactcgccc gtagggcctg ttgatgcacg ctaggagttt 120
cctgatgatg cccagcattt cctacctcc ttcctctcgg tcaatctcag ccccttctca 180
tctccacagt gctagctgct ctgttcccat tttgtccac ggtccagcac tgggcttttc 240
gctgacccgc taccatgtgc catttattta tctggccaga cgctgaggct cagaggttct 300
gcttcctgat acgggacctg gcacaccaa ggagcccaat aaatgtctag ggagcgaatg 360

<210> 182
<211> 362
<212> DNA
<213> Homo sapiens

<400> 182
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gaagggaagt gacacggagc taacgcacag cgcttccaga gacactttct ccgctttctc 120
gcagctcctc cgcacggcgt cctgtgggcg gccaccacac cgcaatctat tctgagtttg 180
caagtggaaa ttaaattcct tgtagccgaa atgagccccc acttcaatca gcctgaagcc 240
tgtcctccca tccccaccg ccctcccgt gcagcatctt ttgaatatgc aaatgggaca 300
ccttgctaaa tggtcagcag gattgatcct gctgttttca tcaaggaaat aaaattaaaa 360
cg

<210> 183
<211> 438
<212> DNA
<213> Homo sapiens

<400> 183

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agccctgcc	tgttgaagtc	actgaagtct	ctgctgcatc	tccgggcttc	tgctgagcag	120
ggctggaagg	tcttgcttga	ggagctgaag	cccaccagca	ggtggcagac	aaatccagag	180
ggtattcatt	ggaggatgaa	gatttctctg	ctctgctcan	gattctcacg	gtgtggctgc	240
tgagggaag	tcagatcacc	tacgtggagg	cccaggggcc	tggctctgga	aacaggaggc	300
agaagctgcc	agtctctant	cttgggcctg	gcantggca	taacattact	tccccctat	360
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gaccccgctt	ttctattg					438

<210> 184
 <211> 462
 <212> DNA
 <213> Homo sapiens

<400> 184						
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aaaagcaaaa	gcaaaagccc	aaacattcta	acgcaggaat	ggcgttcgaa	gatctgcaac	120
tatactactt	ggaaatgatc	cccaggctaa	agtgaccagg	gaagtgaccc	aaaaaaciaa	180
ttcttcttga	cttttaaggc	aggtgcaact	gtggacagct	gagggtcccct	ttgaaattat	240
cttgccatcg	taggatgggc	taggatgact	caactcttta	aatgcatgtt	aaagactggc	300
tactgtattt	actacattct	ggcctcattt	tttttggtta	tgattttgaa	actcagaatg	360
aacaatacca	cgtgtgtgat	gatttagtcg	caaaaaaaaa	aggccagnga	ggccaattca	420
gctnggactt	aaccaggng	aacttgntca	aaaggggggg	ac		462

<210> 185
 <211> 241
 <212> DNA
 <213> Homo sapiens

<400> 185						
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agatcttggga	tgaacctagc	aaccttgagg	acagacaggt	aatttcaaca	ttttctcctg	120
tggaaggcag	aatccctcct	ccttctctca	aggatatcca	tatcctaata	tctggaacct	180
gttaccttac	acgatgaaaa	gaactttgca	gatgtaatta	agtttatgac	ctcatctcta	240
c						241

<210> 186
 <211> 476
 <212> DNA
 <213> Homo sapiens

<400> 186						
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ttccagtcct	aaacatcaaa	gatttccagg	tgatgttcaa	gagaaactat	tcaaactaag	120
aattgcctgg	aagagtggat	tctagaagga	agaatgggtg	actaagantt	actcacatat	180
cagaaaacca	gaaaattcag	aagatcttag	cgatggcacc	accacccatt	caccagctta	240
atctagaaac	ctggacatca	tcattgactc	accttgatga	tgcaattaac	cagcaagtca	300
tgacctctct	gctttcaaat	tttttcttga	aaccatccat	atttctocat	tttcaactgcc	360
actggcccat	gccaaaccct	catgtctcct	ctagagcttc	ctacattttc	ttctagctag	420
atttctctta	aaccacttta	cacagaaaag	ctaaaatgaa	tttcttttaa	aaacct	476

<210> 187
 <211> 226
 <212> DNA
 <213> Homo sapiens

<400> 187						
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gaatcatccc	aactgaggcc	atcctaggcc	agccccagc	caaccctcag	ttgacagcac	120
atgcataagc	aagccctgtg	cacatcagct	gaacttgctc	cagatcagca	aaactgtcca	180
gtcaatttgc	agacttccga	gaaataataa	atggttggtt	taagcc		226

<210> 188
 <211> 90
 <212> DNA
 <213> Homo sapiens

<400> 188
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 cctctggatt anaagggatg tttggatgaa 90

<210> 189
 <211> 261
 <212> DNA
 <213> Homo sapiens

<400> 189
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 atgggccctc accagccacc aaatctgcag aagctttgat cttggacttc ctagtctcca 120
 gaattgtgag aaataccntt tgggngtgta tannctggnt aannncaagc tgaangggcc 180
 tcgnnggcct ntatgantnc tatatggccg ntatggccna ttcnnnnggn gggnaccccg 240
 naagaaatac tcataagcca c 261

<210> 190
 <211> 352
 <212> DNA
 <213> Homo sapiens

<400> 190
 gttcaaaatt tctattacaa attattgcat cctcctgtga agactgcagc ctctcaggtg 60
 tcttccatc gactaaaatg aagaggaagc acaaggagaa atctggacac agagacagat 120
 gcacacaagg ggaagacaat gtgaagacac gcagggagaa catcacgtga agacagagga 180
 tgggaatgac gcttcaacaa gccaaaggaac actaaagatg actggcaacc aacagtagct 240
 aggagaaggc aaggaaggat tcccccatgg gtttttagagg gaacacagcc tcgtcaacac 300
 cttgatttca cacttctggc ctccaaaact gggagataat aaatttctgg tt 352

<210> 191
 <211> 465
 <212> DNA
 <213> Homo sapiens

<400> 191
 aaaccctaaag gccagaagga aatggcaaaa cagttttcat gtgctagaag actatcaacc 60
 cagaatttta taccagaga atatatcctt catgaataaa gaagccacag cattctcaga 120
 tgaagaaaac tatgagaatc tggtggcaga ccaccctaag agaatgacta agtgaagtcc 180
 tctaagcaga aaggaaacaa taaaagaagg aatcttgga tatcagaaaa ggaaaacatg 240
 gaagtcaaaa tacagtggta aactatgaaa tgtcagcgtt cagccagatg gtatgatgga 300
 gcagcagaag tcagaattca gtgaggggac actgaaggaa cagataatgg nnctgnnttn 360
 gcntggaagg ggnnttcaat ttgtaatttc aggggttaact gcagaagtgt cttcaggaag 420
 gctgcatctg caagccagga agagagaact caccagaaac caaat 465

<210> 192
 <211> 134
 <212> DNA
 <213> Homo sapiens

<400> 192
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 ttaatagcaa agcaaatattt gctggagaag aaatgagatt tctttgtcaa ggaaccagcc 120
 ggaggaactt cagc 134

<210> 193
 <211> 421
 <212> DNA

<213> Homo sapiens

<400> 193

agcctgaact	tgatggatca	ngctggcacc	accagatcg	attaattggc	tcatctgatc	60
tgggggcccc	cccgacccag	gaactgactc	agcgcaagga	gacagctccg	actctccatg	120
atttcatccc	tgaccaatca	gcactcctgg	ctcactggct	ccccaccca	ccaagttgtc	180
ctgaaacact	gctcaccag	tgcttgggga	gactgatttg	agtaataata	aaactctggt	240
cttctgggtc	tagatccttg	aggaatcgcc	acactgtctg	ccacaatggt	tgaactaatt	300
tacactccca	ccaacagtat	aaataaaaaa	aaaacaaaac	naaaaaaaaa	aagggccggg	360
ggggcaantt	nagttnggat	ttaacaaggg	tngaatttnt	taaaaagggg	gggactaccc	420
a						421

<210> 194

<211> 472

<212> DNA

<213> Homo sapiens

<400> 194

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agcagcctgg	tgggcatgaa	gcaccgagac	gagggcgaca	gggcggtgct	ggagggcgctc	120
agcgtgtccc	tagagcgctt	cccaagtcaa	aatataaaca	ccgctcgttc	ccgcctttct	180
accacatggc	attccgctgg	gatacttcta	cgggggaagct	tcctgcccgg	ggcatcgagg	240
gcgttcgctg	ccgtctgtta	tggcggtgct	gctgtagata	accggatccg	cgaatgctaa	300
cgctcaccag	gatgtctatat	agcctttttt	atattgccta	ttaagccccg	aatgntttgg	360
gtctancggg	tattgctaag	taggattgtg	acagtcacgc	ccccggcagc	ggtgtttcaa	420
agtcccctga	cagctcaaca	tgttgtcaca	cttcangact	gtgccaatcc	ac	472

<210> 195

<211> 367

<212> DNA

<213> Homo sapiens

<400> 195

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ccgggtcctg	ccttaactga	tgacatttga	ccacanaana	anngaaaang	gcctgttntc	120
gcntaaacng	atgacatggg	antttagaaa	nnccttctgn	ctggctcatc	ctggctcaaa	180
agctncccta	ctgagcaccn	tgggnnnncc	actctgcccg	ccanagaaca	accccccttt	240
gactgnaatt	tttcttttac	ctaccccgaa	tcctataaaa	cggccccacc	cctatcttcc	300
ctttgcttga	ctctcttttt	tggactcaag	ccccacctgc	atccagngtg	aaataaacia	360
ctttatt						367

<210> 196

<211> 507

<212> DNA

<213> Homo sapiens

<400> 196

gtcagctgag	gagaggaaag	gattcttagc	ttgagttcac	tccagttgcc	taatgtcatg	60
cccattgctc	aagcccatgt	ggcctgtttg	aaggagaact	gcttatctgt	gcagcaatct	120
atccgagggc	ctttgggcca	ttatgctgtg	aatgtgacat	ctgcagccaa	gctctgcagt	180
cagagtctat	gtaacaatca	tgggaagagta	ttcgaaaaac	acctgagtcc	tccttctatc	240
tgcataatgcc	tgaaagcagt	ggtaagaaat	atgtttctaaa	caagagtttc	agattcatca	300
tttctgaaaa	taataaacag	aagacaataa	cagacatgaa	gaatggattt	gtgtgtcact	360
gctattacgg	ctggcatgga	ccgtcttgtc	acgatcactc	ttcagatctc	ctaagagtga	420
tgaataaggc	tcctactatt	aacttcaatt	tattaanttt	tctcattatg	gcttcttctg	480
ngattctgct	aaaaaaaaatt	tagccca				507

<210> 197

<211> 176

<212> DNA

<213> Homo sapiens

<400> 197
ggcccatccc ttggttttag cctggaagac cagttttgac tttgaaccgg ttggcctaga 60
atttggtgct ttgtactaca aactagattc ccagctttgt ccagccctcc tggagttgac 120
tgctgcctga agaattttctc accatgtaaa cacaactctc ctaaagcagg cctttg 176

<210> 198
<211> 304
<212> DNA
<213> Homo sapiens

<400> 198
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tgccttggtcc ttccaaaatg ctgggattat agggcaagagt gtcaggcata ctatatgcta 120
atccaacagg actgtggtct tataagaaga ggaagactct ctctccacca tgagaagaca 180
caatgagaag gctgcatctc gcaagccaga aggagagccc tcgctgggag gtcagccatg 240
ctggcaccct gatctcagac ttccggcctc cagagttgga agaaaataaa cgtctgttgt 300
ttat 304

<210> 199
<211> 422
<212> DNA
<213> Homo sapiens

<400> 199
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gcagctcagg tcttggtaga gaagatctac cataaacagt gtagctacaa aatgctgaga 120
atcagaggggt cccaccaaac tgactttaat atccaatgaa gggacagctg tgccttggtg 180
tctccacaaa tgttgacgtc atgaagaaca agaaagactg aaaacctgtt ccagattgaa 240
ggaaattaga gatgtgacaa ctgaatacac cttatgatct gggatgggat cctagaccca 300
aggacattag tgggtcnatg gcaaaatctg acagaaattc aaggactgct tctctcatta 360
aataagcttt tcaaggaaaa aagaatgtnc tnaaagntgg atgaagatgt catttggcca 420
tt 422

<210> 200
<211> 308
<212> DNA
<213> Homo sapiens

<400> 200
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catatagggc ctactgtaat ccatttaaag gttaagtctc caccacagcg cgaacatgga 180
tgcattgctgc acacaattag ccaattatgc atgtctatgc ttctctcttg tgaatattca 240
tagctcctcc tataacctgt tgaatatgta catttggcca cgctgttcag cataaatccc 300
tgtcttcc 308

<210> 201
<211> 361
<212> DNA
<213> Homo sapiens

<400> 201
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gcaagcagat cacttgagcc ccggagttgg agaccagcct ggataacatc gcaaaatctt 120
gtctctacaa aacagacaaa aatgaggatc gcttgagccc aggaggttga ggctgcagtg 180
agccacgttt gagccactac actccagcct ggataactga gcaagaccct gtctcaaaac 240
aaaacaaaaa aaaataaaca aacaaaaaaa aaaagggccn gngnggccan ttaanttgg 300
antnanccag gnnnaattng ttnaaanggg ggggacnccn aatntntttt tttttttatt 360
c 361

<210> 202
<211> 333

<212> DNA
<213> Homo sapiens

<400> 202

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cgatgctggt	aatgatgaaa	taaggcaaca	ctgggggcaaa	cactgttatg	gccaatgacc	120
tatgcatcca	angcagcttc	ttcagcttca	agttggggaca	gtcgcagcacc	aagaagagga	180
tctacatcag	cgtcttggta	ctggtggtga	caaagcagca	atctgcctga	ggctctgcaa	240
gcctacaaca	ttctttttta	catccccaag	ctggaaacac	gtaaaatgtc	cataagccac	300
agaaaaata	aataaagtat	ggcattttct	tac			333

<210> 203
<211> 128
<212> DNA
<213> Homo sapiens

<400> 203

gcggtaaaac	acagaccatg	aggttgaggt	gccactggcg	gcggaggaag	cggcgacctg	60
cactggggaga	gattcattac	ttcggtttta	cctccggaaa	aagctggagt	caagttatgc	120
ttattttac						128

<210> 204
<211> 475
<212> DNA
<213> Homo sapiens

<400> 204

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gaagaactaa	tgtcttctgc	aacagccaac	aagggcctta	ggcctgcca	cagccatattg	120
actgagcttg	gaagtgaatc	ttctgagccg	gccaaacagcc	cgtgatcaaa	gccatcaagc	180
tacaaatgat	cttacaatg	gaacctcaaa	tgagctcagc	tcacgggttc	taccgaggac	240
ccctggatca	acccgctggt	ccctcaatta	ccctagaaaa	ttccctctg	gaggacacca	300
aactgcaggg	ccccttcttc	acccctaacc	agcaggaagt	agccagaacg	actgncacac	360
ggntcccaac	aacaattggg	gnggtctggt	taaaagccag	aattgaaagg	aggngccant	420
tggcttcctg	ggtcaagtag	gggctcaaaa	agctgngaaa	ctcactcatt	tectg	475

<210> 205
<211> 356
<212> DNA
<213> Homo sapiens

<400> 205

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atctaactgc	ttaaaatgag	agcaggaatg	gctgttggct	tagatagatg	gcaccccaga	120
gtcctgaaag	aacttgcaga	tgtgatcaca	ggaccatctg	aaccggagaa	accgggggga	180
atggagagac	agcaaaagac	cggagatggg	taaatgagtt	ccagattttc	caacacaaca	240
ggaaagggtg	cttacgggtc	tgtgtgctgg	ttacatttaa	tgttgagctt	cagcaaaact	300
ccggaacaga	tgattgaagg	ggctttgtgc	cgtattttatt	taaagaaaag	taatga	356

<210> 206
<211> 344
<212> DNA
<213> Homo sapiens

<400> 206

gacctgatga	ttgatttagc	atctttggca	tccggccctg	ctctgcttgg	ccatactgct	60
gccttcaccc	tcagctgttg	caactctttt	ggccactttg	tgtaactgcc	ctgccaagcc	120
ctgcttctctg	gctgttcaaa	gaaagaagtg	tttcttacag	gagatcacia	caaaaggatg	180
aaatctgggg	tcaggggaa	gggtagcttc	tgaagctgga	aaataaagaa	gtaaggaagg	240
gagactgtgg	aatttaccag	ggagggaaac	taatatattcc	ttttcatatt	aagttgntac	300
tattctggct	ttttaccatg	atcatatatt	atattcaaaa	taaa		344

<210> 207
 <211> 241
 <212> DNA
 <213> Homo sapiens

<400> 207
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 cagccatgaa ttccctgggct caagtgatca tccttcctca tcctccagtg tagctgggac 120
 tataggcaca tgccagcatg cccagctaata tgaagaaaaa cattttcaga tgaaattgtt 180
 gtacatatat cttcaagtgt gttagaaata tacatcttgt gtattaaatt tatttgctca 240
 g 241

<210> 208
 <211> 457
 <212> DNA
 <213> Homo sapiens

<400> 208
 aatcttgcta ctctccatca caaggcaaag tctatcttcc tttcttttga atctgggaag 60
 acacttgatga ctgcctcaat gaataggaag aatacagtgg aagtgatgct gcgtgggctgc 120
 taagaacagg ctggaaaagg ccatgcagcc tctgttcgtc tccctcttgg aacacttgctc 180
 tttggaaccc tgagttgcca agtaggacat ccagggtctgc cgtgctgttg ggaagcccaa 240
 aactagccca cacagagaga ccacatgaaa aaacactgac attgcatgaa gagagggtga 300
 tgtgctccag ctgcctaagg cttcatctcc tgccctgttc agctccagaa aacctgaagg 360
 ccacagcatn agacccttg nnttaaacca ttttacttga cctgttntga actttngacc 420
 aattntttat ttttgaccaa taaaaaataa ttttatt 457

<210> 209
 <211> 482
 <212> DNA
 <213> Homo sapiens

<400> 209
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 acaagcaagt tacctgcaga atccactgtg tcctttgatc tgtcacagca gctgggggttc 120
 ctgactttcc ctcttggtgc ccaggctgga gtgcaatggc acaatctcgg ctccaccgcaa 180
 cctccgctc cggggttcn gcaattctcc tgccctcagc tcccagtag ctgggattac 240
 agacatgtgc caccatgccc agctaatttt gtatttttag tagagacagg gtttctccat 300
 gttgatcagg ctggtctcga actcctgacc tcacatgatc catccgcctc ancctnccaa 360
 agtggnggga cacaaanccn ctngaccnng gctatnttgc tggaaattta ntaanngtg 420
 gnggaaccat tccaatcttg gaaagctgca aagacaacat gttaatgatc aacacctggc 480
 cc 482

<210> 210
 <211> 349
 <212> DNA
 <213> Homo sapiens

<400> 210
 gtgggaaaac tggggcatca gagaggccaa gcggcttgcc caaggtcaca cagcggatgt 60
 tcgagtggaa atggaatgca agcattcaga ctccagaact tgcactgtct tcagaaatgg 120
 cctcaagtta gtggtttgct caggggtgaa gagcaaagca aagttcaggg cctcatccca 180
 ggggtgtgtca cttggcatga gggacgagga cccccatttc ctctcagctg aggggaagag 240
 ctctccacaa tgteccctg cacggtctc tggctaccct gacaacaagg gccagctctc 300
 cctactctcc ctggagtaaa gctgggctca ngaggtgcta cccgtttcg 349

<210> 211
 <211> 350
 <212> DNA
 <213> Homo sapiens

<400> 211

atctgtccca	tgatgaatct	gggttgtccc	tgtgtgagcc	ccttgaacca	acagattgtg	60
gcagagtga	attgcaccag	tctgagacct	acaccttaag	gatgcctggc	agctcctgct	120
tttgtgttcc	tcggagtcac	gagccacgaa	gtcaagctac	cctgctggag	agaccagctg	180
aagaagcctc	ttgaagagga	cctgagacct	aaggctcagc	catcccagac	tgtgagttaa	240
acctccagat	gagtccaacc	ccacctgcta	tctgactaca	gctacataga	cgacaaacca	300
cctaagtgat	tccagtcaac	ccacacaact	gtaaaagata	ataaaaagttg		350

<210> 212
 <211> 478
 <212> DNA
 <213> Homo sapiens

<400> 212						
aagacaaaag	caaatacagtt	ttggcaagaa	atgcactcag	cggccctgac	tgggagagtg	60
actggattga	tacaaccatc	agtctatttc	agattatgga	aatccagcaa	ataatagatc	120
atcagtattg	cattcaaagc	ctccagtgcg	gatctggaaa	ttataattac	aatattcctg	180
ttataaaaca	cacaccacc	aatgtcaagt	tctctctgga	aataaacaca	acagagccat	240
tgatagtctt	ccagtgcata	ttcacccttg	gaaatatatg	ttcccatagt	aaaaggggaa	300
ccaaagggat	ggaaagccac	agagaaatct	cccaggagat	gacacaggga	tatcaagcac	360
atctggagcc	tcctggaccc	catttttttna	acagatngtt	ccatttccgg	gaagctgccc	420
ggatttagct	gctgtcaact	gatccttatt	ttgctgggat	attcttcacc	gattactt	478

<210> 213
 <211> 472
 <212> DNA
 <213> Homo sapiens

<400> 213						
agatgtgggc	tcactatggt	gtctagactg	gcctcaaact	gctgggctcc	tgcgatccac	60
ctaccttggc	cttccaaagt	gctgggatta	caggcgtgag	ccaccatgcc	cagccgcttc	120
atctttcttt	actcatgggt	gccccattat	tgctgtgaag	cctttttcta	atgttcattc	180
tctccctctg	caaagtgggc	aacagtgaag	aaactacatg	atcttcaggg	aatataagca	240
tggaagatgg	actaaagaac	acagcaggcc	gggtgcagtg	gctcacacct	acgatcccag	300
cactttggaa	ggccaagnta	ggaggatcgc	ttgaggctan	gantcnaaac	cngcctnggt	360
caacataaaa	aagaanccng	ctttttnaaa	nnaaaaaatt	ttaaaantta	ggcccaattt	420
ggggggcatn	cntnntngng	gntcccagct	gnatggcgng	agggatcact	tg	472

<210> 214
 <211> 147
 <212> DNA
 <213> Homo sapiens

<400> 214						
gcggggacat	ggaggccac	ggagtacctg	gcaggccac	agtccacagg	ttggaaagag	60
gtgcccagc	cctgggcttt	aagcctgggc	tctgaccttc	aacgtttgct	tttcacacca	120
cacatcatgt	caataaatag	ttactgg				147

<210> 215
 <211> 338
 <212> DNA
 <213> Homo sapiens

<400> 215						
tcaacttgct	gaaagggaca	acattctgga	ccacgcattg	aaccttgcc	accatgctga	60
ctctcctgga	tgggctgcca	tcagggatca	taggtctcat	gagcagactg	tcaccggatg	120
acggactgaa	ccccaacagg	tggtcttgct	gcattctatg	accgccagaa	ccccacacc	180
tcccattctt	caaattggacg	tacagctttc	tccttaagtc	aataaacttg	aaaaagttgc	240
tttataccgc	ttgagtaagt	ggtcagcctc	ataaggagga	gacaactgtg	aagataaata	300
tcatgaaaac	aaaacgagat	taaattataa	ctagacat			338

<210> 216
 <211> 363

<212> DNA
<213> Homo sapiens

<400> 216
gggcattnac ataagccatc atntncntg ngacctgcac gtacncatnc agatggccgg 60
ntnctgcctt aactgatgac atttcaccac aaaanaagtg aaaatggcct gtnctgcct 120
taactgatga catggacttg ngaaattcct tctcctggnt catcctggct caaaagctcc 180
cctactgaac accctgtgac cccactctg cccgccagaa gaacaacccc cctttgactg 240
tnattttcct ttacctacc gaatcctata aaacggcccc acccctatct ccctttgctg 300
actctctttt cggactcaac ccacctgcat ccagntgaaa taaacagctt tattgctcac 360
acc 363

<210> 217
<211> 236
<212> DNA
<213> Homo sapiens

<400> 217
atctagaagc aataaaatgg gcttaaggaa cacggaataa agggagcaac cctgtgaaga 60
ccacaaaggc agaacagtga cagcagctca gcagcaagac tgctgggcac cgggcctggc 120
tctccaccac ctgactgggt aacttttcaa acaccttcat ttccaagaa gtaggaatgn 180
tggaagact aaataaacat atgtcaagta ctttaattacc tgccccacata gtaaaag 236

<210> 218
<211> 377
<212> DNA
<213> Homo sapiens

<400> 218
gtactcacia gctacaatgt aaatcagtaa agaaagagat aactatacca gaatatggag 60
cctattgata ggactcacia gattcaagggt gccttgtcca aacagatggt cattgctctt 120
tgacacacct taaataagag ttctgtagtt aaacaacttt ggaaaaagag gtgtactctc 180
accctcccc atcataatga acatcagcat gaaggctcta agaagacca cagcaaagaa 240
gccggttcag ttatttttaa tctgactctt cacaacttta ttttacacca ggtaactttc 300
aaatcttcac agaactaatg ttttgtgaaa tttactttga aaaacatcgt gctagaaata 360
acattatttt gctatcc 377

<210> 219
<211> 356
<212> DNA
<213> Homo sapiens

<400> 219
gggcattcag ataaagccat catatcacct gtgacctgca cgtacacatc cagatggccg 60
gttctgcct taactgatga catttcacca caaaagaagt gaaaatggcc tgttctgcct 120
ttaactgatg acatggtctt gtgaaattcc ttctcctggc tcctcctggc tcaaaagctc 180
ccctactgag caccctgtga cccccactct gcccgccaga gaacaacccc cctttgactg 240
taattttcct ttacctacc gaatcctata aaacggcccc acccctatct ccctttgctg 300
actctctttt cggactcagc ccacctgcat ccaggtgaaa taaacagctt tatttg 356

<210> 220
<211> 436
<212> DNA
<213> Homo sapiens

<400> 220
gggcattcag ataaagccat catatccct gtgacctgca cgtacacatc cagatggccg 60
gttctgcct taactgatga catttcacca caaaagaagt gaaaatggcc tgttctgcct 120
ttaactgatg acatggtctt gtgaaattcc ttctcctggc tcctcctggc tcaaaagctc 180
ccctactgag caccctgtga cccccactct gcccgccaga gaacaacccc cctttgactg 240
taattttcct ttacctacc gaatcctata aaacggcccc acccctatct ccctttgctg 300
actctctttt cggactcagc ccacctgcat ccaggtgaaa taaacagctt tattgcttca 360

cacaaaaaaa aaaaggccag ggaggccant tcanctngga cttaaccagg ctgancttgn 420
tcaaaagggg gggacc 436

<210> 221
<211> 441
<212> DNA
<213> Homo sapiens

<400> 221
acctgccttt catcttcagc catgactgtg aggcctcccc agtcatgtgg aactacggac 60
tcttgctcta tcaccaggct ggagcacagt gacgcaatct cggctcactg caacttcgcg 120
ctcctgggtt caagcaattc tcctgcctca gcctcctgag tagctgggat tacagagtca 180
taagaagaaa cgggtgatgcc tgacaacttg gtaaaacctg agacatgaac attgagtcct 240
ggactcggat tgtctggctc tcaggacagg atactccaga attcactctg aggcctccac 300
tgggcagtca ttggtctgct aagaacatca caccngggga taaacttcct ggaagtcata 360
atttaaacad ttgagttttc cttttacccc agcaagggcc tttatgttgg ctcaaaaagc 420
aatgtaatga caatcttgct t 441

<210> 222
<211> 443
<212> DNA
<213> Homo sapiens

<400> 222
gtgaagtctt gaggccaaga aagggtagct gattttctcca ctgggtgacag aatttcgctc 60
ttgttgccca ggctggagtg caatgacgag atcttggtc actgcaacct ccacctccca 120
ggtttaagtg attctcctgc ctcagcctcc caagtagctg ggattacagg tggagtcttg 180
ctctgtcacc caggctggag tgcagnggag cgtgatcttg gctcactgca agctccgcct 240
cctggttcac gccattctcc tgccctcagcc tgcggagtag ctggaactac aggaagaaaa 300
atggnccttan aangggaaaa ccanttgcan ccaagatcca aattaatacc aaggngccg 360
gggagaanaa agaaccnttg tggagaaga gtgaaaaagc nttgtctttt ggggggtgaat 420
tgcagaaaga aaataaatta ttg 443

<210> 223
<211> 436
<212> DNA
<213> Homo sapiens

<400> 223
gggcattcag ataagccatc atatcccctg tgacctgcac gtacacatcc agatggccgg 60
ttcctgcctt aactgatgac atttcaccac aaaagaagtg aaaaatggcct gttcctgcct 120
taactgatga catggtcttg ngaaantcct tntcctggct catcctggct caaaagctcc 180
cctactgagc accctgtgac cccactctg cccgccagag aacaaccccc ctttgactgt 240
aattttcctt tacctacccg aatcctataa aacggcccca cccctatctc cctttgctga 300
ctctcttttc ggactcagcc cacctgcac cagggtgaaat aaacagttta ntggctacnc 360
attaaanaaa aaaaggcccn ggggggccnt tccggtnngga attaaccggg gtnantttng 420
ttaaagggg gggcca 436

<210> 224
<211> 457
<212> DNA
<213> Homo sapiens

<400> 224
ctatgaagag cagcccgtg tgggagacac tgatggccct cgtgactct agagtggagt 60
gaattgctac cttgctgacc aggaaatgat cgatgcctgg cacttggcag tgaatggggc 120
gtcctgcgat gatccgaaca cgcctgttct cagaaatttg cagcacaatg ttgttatcca 180
agacatacaa tgaattgtcc ataggattta ctgcaaggct tgttggccac tctaactgca 240
cctgtgaaac gaacagaaca cataccatta ggttaccatg tctttccatg gacagtttta 300
acttgaaaaa aagaaaaaaa aattgggtgta ttgnttcccc cgtcttatga attttaanca 360
ccattgggtg atgtctcgga aagtggaggg cagggggagg atgggttaatc acatgttctg 420
gtaaactgtac ttatcattta tgccatttac aatataa 457

<210> 225
 <211> 105
 <212> DNA
 <213> Homo sapiens

<400> 225
 cagaactgag gacncagtgn ncatgtaact aactcctggn taagaggata tgggtagaan 60
 gcacangng cnaattcng gcttctgctc cttgaaacac agtaa 105

<210> 226
 <211> 427
 <212> DNA
 <213> Homo sapiens

<400> 226
 gggcattcag ataagccatc atatcccctg tgacctgcac gtacacatcc agatggccgg 60
 ttcctgcctt aactgatgac atttcaccac aaaagaagtg aaatggcct gttcctgcct 120
 taactgatga catggctctg tgaaattcct tctcctggct catcctggct caaaagctcc 180
 cctactgagc accctgtgac cccactctg cccgccagag aacaaccccc ctttgactgt 240
 aattttcctt tacctacccg aatcctataa aacggcccca cccctatctc cttttgctga 300
 ctctcttttc ggactcagcc cacctgcac caggtgaaat aaacagcttt tattggctca 360
 cacaaaaaaa aaaggccagc gagggcaatt cagctnggac ttaaccaggc tgaacttgct 420
 caaaagg 427

<210> 227
 <211> 315
 <212> DNA
 <213> Homo sapiens

<400> 227
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 gaaaggccct gagatacttg gagagagga aaagtccagc tgcccagcac ctgagctgag 120
 cccagcctca gccaacccca ccggctgact gcaaacacat cagtgaccac cagtaagacc 180
 agcagagctg cacagccaag cccagcctag attgcagaat tgtgagcaaa taaaatggat 240
 attgctttta gccacaaaat attgaaatgt tttttaaatg tagaatgtga tttctaagaa 300
 taaaaagttg caaat 315

<210> 228
 <211> 415
 <212> DNA
 <213> Homo sapiens

<400> 228
 aaccaaacca acaccggaga agctgagcaa atgcagtcag ttggatgtga attacctttt 60
 agttgctgac aacagaaagt taccctgaac cactgaccaa gggatgaaaa gcgtccgtgt 120
 actattagta attctcagaa tcatctctgt ccccaaccaa gtatggaaag ccaagtacag 180
 tatcatggaa ccaaattcaa atgctggtct caaagttccc gacttgcttg ctttcaagtg 240
 ccacttgaga gatttttaaat gacagtgaaa tgctttgttc aactaaaaat tcaaagtgtc 300
 gggacaangt ttatttctga gactcaagag atagtttttg ctttagttgn tgccattggn 360
 gntgntggg ngggggaaaa aangncagaa aataaaatct gccacttttc ttttc 415

<210> 229
 <211> 350
 <212> DNA
 <213> Homo sapiens

<400> 229
 aattgtgaca ggctcccagg acctaaaccc agaaggaagc aggaccatat tgctgcctag 60
 agaaggggat ggagcagatt ccaggacacc gatgaaacag aagcttccat cacagtgtt 120
 tctgctacct tatgagacag ttcgcatctc aacagctcta ggatacaaag gaagcacata 180
 catttatact ttataaggtg gccaaaggaat cctactgtga acaaagaatt tctaagataa 240
 taaaatccca cttttttttt ctataaaaag caaaaaaaa aaggccagcg nggccaattc 300

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agntnggact taaccaggct gaanttgntn aaaagggggg gactacccaa      350

<210> 230
<211> 91
<212> DNA
<213> Homo sapiens

<400> 230
tgacacgaaa atctggttct cttgcactaa tatgtgaact tatggacatg aatatttatg      60
agctaatacg agggagaaga taccattat c                                91

<210> 231
<211> 285
<212> DNA
<213> Homo sapiens

<400> 231
ataaggaaa cgaagcacag agaagtatct gccaagggtc acaaaccagt ggagcaggat      60
ttgacccaaa gcagacagtc ggacttcaca gcccggtgtc tcaacatcca actgctgaag    120
agttaacaat ttacccttga cagccgctat aagcaaagggt aaatgctcaa ctgctaggaa    180
gggacagtca gaacaccgtc ccatatccag tatccatgtc tctctgtttg tttatggcct    240
ctatgacttt ggcaaaaagaa gtacacacaa tctgattttc cgaac                    285

<210> 232
<211> 71
<212> DNA
<213> Homo sapiens

<400> 232
atggtggagg attgctcaag cccaggaatt tgagaccagc ctaggcaaca tagcaagacc      60
tcattctctac g                                                    71

<210> 233
<211> 155
<212> DNA
<213> Homo sapiens

<400> 233
ntataatggc tanagctgga aacacatcat gtatncagan ggaaaagggc aagaagattg      60
caggatccac agacctggtg ttcccaaaca gctgaaccag tntcagtaca cctctggatt    120
tcccattact tgagataaat aaactctttc tttttt                          155

<210> 234
<211> 428
<212> DNA
<213> Homo sapiens

<400> 234
gtatcgatcg caagagtgcc cccaatcaac tttctgcaag caaatctctg tttcatggag      60
aacctggcct gcaacatgac acctctcacc acatcttacg tcagcagttc ctaaagtgtg    120
gctgtgggact tgctacagca gatatgtttg gagaaaaaaa ttcataattc tcatgttcac    180
cccacaccta caaaaccata atctccatga atgggtccca aggatgtgta ttttttcaaa    240
gctcctcctc cactgctgaa tctagtgtat agcttgatgt agaaaccact gctataccaa    300
aggctcagcc tcaaatcagc ctacagcttc tatcttgctc catcttcggt tcagccacca    360
atagagnggn gaagccatta aaaagggtcaa aagtaggtaa ataaaatgtg aaccagtata    420
taaaagttt                                                    428

<210> 235
<211> 355
<212> DNA
<213> Homo sapiens

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<400> 235
 gggcattcag nataagccat catatnccct gtgacctgca cgtacacatc cagatggccg 60
 gttcctgcct taactgatga catttcacca caaaagaagt gaaaatggnc tgttcctgcc 120
 ttaactgatg acatgggtctt gtgaaattcc ttctcctggc tcatcctggc tcaaaagctc 180
 ccctactgag caccctgtga ccccaactct gcccgccaga gaacaacccc cctttgactg 240
 taatttttctt ttacctaccg gaatcctata aaacggcccc acccctatct ccccttgctg 300
 actctctttt cggactcagc ccacctgcat ccagggtgaaa taaacagctt tattg 355

<210> 236
 <211> 381
 <212> DNA
 <213> Homo sapiens

<400> 236
 gtaacaactt ttaaaccattc acgtgacgga ccaccttccc tcagccaaac aacttcctctg 60
 aaaggcgccc gaaggagcct tcccatccac cgcggttgcc caggaaaggc ctgtggggct 120
 ctctctcccg cgctccacac gccctcgcat cccaccgagg cgccagcttc tgcctgcacg 180
 ttgctgaaac tggcctggag gttctgacaa gaattagagc ggcggccggt gccccgggga 240
 tgacctggaa gcgaaagaga ccggcacgaa ttctagagtt tcgggggtttc cgcggttga 300
 gattgtacgg gaaacaatgc attaaccaaa cctaaaaatc aaacaaacac cgtctggnag 360
 aaccttacca ttaaaaagct t 381

<210> 237
 <211> 449
 <212> DNA
 <213> Homo sapiens

<400> 237
 ctcangatcc atccatcctg cctgtgctcc ctggttcggt ttccctccag ccactgccaa 60
 atgccaggac acaagtcacc acctccccta tgcttagcct tgtcatcctc catgtcattg 120
 aggcccttcac gactcccaact ctggaaccaa gcaatcaagg cctctgaatt gcactgttgc 180
 actgaccgtt cacctcctta ctgtctgctt tatgcagagt gcaagctctg tgaaggcaga 240
 tgctctgcct gagtgggtttc cagctgcccc cagagcacct agaagaggcc cagcaaatag 300
 aaggcactcc atgattatatt gataaaagaa tgaatataac ccaacacttt atggctcccc 360
 ataactggat gccccctcc ccatggctcag atccttttta tatttggtgg acatgacaga 420
 aatnaatctt ccaaataaat gaattctta 449

<210> 238
 <211> 366
 <212> DNA
 <213> Homo sapiens

<400> 238
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 aagcccttcc agaaaagccc ggactttcca gaagcatcct cagcaagtgt cacaagggaag 120
 gaagccagag gctgcccac gcatacctga agagagtcaa cctagtctcc ttaaaccattt 180
 cttctgctcc acccctgaaa gaagcaatga ttaaactttg aagccctgta tatcttaata 240
 ccttggggaac atttgctatg tatatcctca ttaaatgaaa acattgcaac ggcaaaaaaa 300
 aaaagggccg ggggggccat tnannttggg nttnacnng gngnanttng ttaaaagggg 360
 ggggcc 366

<210> 239
 <211> 370
 <212> DNA
 <213> Homo sapiens

<400> 239
 cagccctaac agactaagac gaataactaac tgagaaccca ccagacttgg agaaataaac 60
 cccttttgac tgagccaact gaggctgctc ttgaaatcaa aatctatcat aaagtaagag 120
 tgaagctgca gcgtgggtct acctaaaact caattcaaga aattcaagag aagagaacgc 180
 tcagctagag tgaaccagga gactgcaaca atcttggtca tttgggtatt cacttattta 240
 atgtctgtat tttgtagatc tagattaatg tgaatttcct tagaacttgc atcttggttg 300

gtttactcag tgctatatcc ccaatgtctg acatagtacc tggttctcaa taaatacttt 360
gaaacaattg 370

<210> 240
<211> 305
<212> DNA
<213> Homo sapiens

<400> 240
gcctgaaaca caagcacaac acactgaagc taccatggat ccccttggcc cagcagctgt 60
tacaccctaa atgatattct cttctagcac ttcccttacc tttgtgtctta atctgaaggc 120
atctggactc ttcttccctat tggtagaagg atcaccaatg ggtgcataaa acctatttta 180
tgtaacagcc cagtggacct gaagcaacac ttcatagcca agtacattca tagttcttca 240
acaaaatgta taaatttcac cccttgttgt aataaataaa gacaataaat aaatagcctc 300
ccatt 305

<210> 241
<211> 448
<212> DNA
<213> Homo sapiens

<400> 241
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gtttcttcag atgttcagag cctgggagca gtaagtgttc aaaaaatggg gtttaagggt 120
ctcactccaa caccaggct ggagtgcagt ggtggtgtga ttatggctca ctactgcctt 180
gacttcccag gatcagatac gggctttcac tgtgttacc aggctgggtc tgactcctgg 240
acttaaaact atccaccagc ctcagcctcc caaggtgctg ggattacagg tgtgagctac 300
cactagtggc ctcttctaag aggaaatttg gatatacaga gagacaccag agatgtgggg 360
gcacagagga aagacctgct tggatacagt aagaaaggca gcctctgcna acntaagaca 420
aagtcctaag aaaaacccaa ctgctcca 448

<210> 242
<211> 511
<212> DNA
<213> Homo sapiens

<400> 242
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ggactactgc ttaagtcana actgaggggc attcanataa gccatcatat cccctgtgac 120
ctgcacgtnc acatccagat ggccgggtcc tgccttaact gatgacattt caccacatna 180
agaagtgaag atggcctgtt cctgccttaa ctgatgacaa tggncctgtg aaattccttc 240
tcctggctna tcctggctca aaagctcccc tacttgagca ccctgtgacc cccactctgc 300
ccgncagaag aacaaccccc cttttgactg gaatttttnc ttntacctan cccaaattct 360
tanaaaacgg gncccacccc taatnttccc ttgacctgga cttctctttt ttgggactna 420
ggccacactt ggcattncaa nggtggaaat aaaaancann ttttttttgg ctctccncca 480
naancaaaaa atanaaataa tatagctctg a 511

<210> 243
<211> 425
<212> DNA
<213> Homo sapiens

<400> 243
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acttctctgg ctccagtgat cctccccctt cagcctctca gcagagagag aaagaaagca 120
gagctctttg aagcagagaa agaaagcaga aagcagagat ctttgaaggc ttaagaaacc 180
ataaggagtt ttggagagtc aatgcatgat gatctctgaa gattctactg aaatctaata 240
aatatgtcct cactgccatc aattcaaaaag aacttgctaa gaaggctcta gaggcttgta 300
ctctcagata tgaaaagtga gatgatgtgt agtgaaagtc atatataggt tgtaaattgc 360
aatatggaat tcccaaatgc tgaattcatt ttatctcttc ggaaataaaa acctggtaaa 420
gactc 425

<210> 244
 <211> 208
 <212> DNA
 <213> Homo sapiens

<400> 244
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 taagactgcc agaagctgag agagagaact ggaacagatt ctccctcatg ggcttcagga 120
 aggtcctccc tcaggccttc ttgccggcac tttgaattca aacctgtcgc cttcagaact 180
 gggagacaat aaatgtcttg ttttaagcc 208

<210> 245
 <211> 256
 <212> DNA
 <213> Homo sapiens

<400> 245
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 tctccctccg gaggtctac cagtggcaaa ctcttaagtt tttgtatttg taagtgtat 180
 gatttcacct acgttctgga tacatgtgcc tcatactggg tacataattc ttgaaatata 240
 ttttctactga atatat 256

<210> 246
 <211> 438
 <212> DNA
 <213> Homo sapiens

<400> 246
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 tgaagaccac ctagctggaa tctcagaggg agagctgggg acaggaaagg atgactactc 120
 ccaccattct gtggacaccg agtccagcct ccgggaggac gctgagggaa ccttttggga 180
 cagccagggc agagaacgcc ttttacttct taaggctctg gatcaaaaca gagaagcttc 240
 tgtttcggag cctggcaatc ctcgaacatc agtgtgcatt ttaagccata aagcgcaata 300
 ctgattacaa acaggaatac nggagggtt cctttaaact gcttcagaaa acaaactcct 360
 cggggacttc gaaaggagct ctcaccatag ctcttgcaat ccactctgaa caggaaacct 420
 tctcatctat ttattaaa 438

<210> 247
 <211> 424
 <212> DNA
 <213> Homo sapiens

<400> 247
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 gcggtggatg tgctaagtaa ctccacctcc ctggcgctga ggccagaaag cagacacttc 120
 ctgcagctgc agttacaaa cgaatgtctg tggatttttc gggcaatagt taatgattta 180
 agacaataaa atcctgtgcc ctctgaatc cgtgggcact tccctttgca ccacaaatgt 240
 tggcctctgt ctctactgca gccacggtgg aaacagagag caggaaaaag agcttggaag 300
 aggaaccctg aagaaggggt ggacaccacg catcccagac ttctacacgg ctagaaacac 360
 ccctgactaa tattattact aaagtgtata catggtggca ggccctgttc taggtctctt 420
 acaa 424

<210> 248
 <211> 194
 <212> DNA
 <213> Homo sapiens

<400> 248
 gtaaagccat tgaagcacat tgagacaaga gggaccccag agggaaactca ttcaccttct 60
 ttccaacggg tgcgggtaca gaagtctgca gcctgcacac ggaagaggac cctcaccaga 120
 gcctgacctt gctggcacc tgatcttgga cttctggcct ccagaacatt gagtaataca 180

tttttgttgt gtat

194

<210> 249
<211> 300
<212> DNA
<213> Homo sapiens

<400> 249
caattgcttg ttcagagctc ttgggggatca attggagggga cactcacgaa atcatctcaa 60
gcacagacag gagacagtgg actacatgat aaagcagcgg gaagattttg aaccctttgt 120
agaagatgac attccttttg agaagcatga ttcgtggtac agagaaaagc agcgtgaggg 180
agttacacat cgcataatcg tatggagagc actacgacgg tggtcggagg atcaatgaca 240
actcaagagg cacctgcaca tctccagacg gattttcaga tgcttcatca agatgaagtc 300

<210> 250
<211> 471
<212> DNA
<213> Homo sapiens

<400> 250
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cctccatggg ctcaggagat cctcccacct caccctcctg ggtagttggg actagagggt 120
gcatttcttt tttctggaag cacatctttt aaaagatatt tacatgaagg tctaccagac 180
atgaaattgg agttctagaa agggagaaga tgaggatggg gaagaaacaa tatttcaaga 240
agaaatctct caagaatttg ccaagtctga cccaaaacat caagcagttg atttaagaag 300
tgtataagcc caagctgggt aaataacaatg aaaaccacac tttggcacac cagagtcaaa 360
ctgagggaaa tcaaaacat tattaacac tggaaatccc ctttncnttn aagcacctnc 420
attaagataa atagctaatt tcctaaaaca aattatggga agccagaacc a 471

<210> 251
<211> 614
<212> DNA
<213> Homo sapiens

<400> 251
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tgccaccct tggccaaagg anaggggttt ttantttggg gggtaacaac ccgggggtac 180
cccccgggg cggaatttc aaantctaaa attccgggaa ggggaacttg gccgccnccc 240
ccanattgga angggggggg tttgtggggg cctctttttt attttgaagc cttccggggg 300
ggaagccaan aaaaaccgcc gccgaaacca agaaacctaa gaaaaccgaa acttggattt 360
gctccccctt gcaaatccgc attcattcng gtgcccaagg ggaccaccgc catttcatnc 420
aagatgaaac cgtggggccn aaggtttgac aaaggggtcc acaaggcagg gtttanatgg 480
gccccgttta aaaacttatg cttnttnttg cggggggccc attctntaag gaatgggggn 540
ggggtcaana atgaattccn tttntttccn aattggggcc naaggncga tggggcattc 600
ttttttaaaa aaaa 614

<210> 252
<211> 546
<212> DNA
<213> Homo sapiens

<400> 252
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aaatttgatg acaaaagaat tcataggtcg acaattgatt ctaattatta agtcttttga 120
taccagtga gaaggaggaa gaaaaaaact gctggctgtt ttacaggaga ttcttatttt 180
accacaaatc ccaatatccc tggtttcttt tcttgttgaa agactactcc acatcattat 240
agatgataat aagagaacac aaattgttac agaaattatc tcagagattc gggcgcccat 300
tgttactggt ggtgttaata acgatccagc tgatgtaagg aagaaagaac tcaagatggc 360
tgaaataaaa gtttaagctta tcgaagccaa agaagctttg gaaaattgca ttaccttaca 420
ggattttaat cgggcatcag aattaaaaga agaaataaaa gcattagaag atgccagaat 480
aaaccttttg aaagagacag agcaacttgg aantaagaa gtccacatag aagaagaatg 540

atgctg

546

<210> 253
<211> 474
<212> DNA
<213> Homo sapiens

<400> 253
agcaatatac tgaaatccaa gattgagaac agcaattctg agagcaaggc agtcatctga 60
gtccaccgcc ttccagctgg cccaccttat gaaagaagca aaccctgagg gcgtggagga 120
gagaagaaac tgctgtcagc tttcccatca cacaacttct caggcagtgc tggcgctctc 180
ccctgctcac ttaggacaaa ccaacacttt tggaatctga ctgtcaagga ggtcacatg 240
gcaccgcgtt taacctcaga tcccaagcct ccaaattggg tgtggtttct ccaaagggct 300
catgagactg atgtgtgagg acatgaggat gacatccggt tgggtgtggc actagaggaa 360
atgccttttt accnaggaca ggaagnaggg gggcccaatt ttcttttcca acatttcaaa 420
caacaaggng tatgtccgac ccccgattca actttcacia acctgcactt aatc 474

<210> 254
<211> 496
<212> DNA
<213> Homo sapiens

<400> 254
gtattacacg anccccaac cagaacgtct atgtggttca ggcntgccgc aatggaaaaa 60
actttgactt ctaattaaac acctgaaacc aatgaatcct cctcttggaa ccaataagac 120
tgggacatca tcagaacctg aatgacaaac ttttggaaag cagggtctca cgctgtcacc 180
cagggttgaa tgacgtggcg cgatctcagc tcattgctac ctctgccttc tgggctcaag 240
tgatcctccc accacagcct gctgagtagc tggactacag agttgcctgc atttcagcag 300
tggatttaag caacctctat gtaaaatatt gcagcatgct gagcttaaga tatttcttgn 360
ttcctgcttt aatctaaagc tttgnaccaa tgatgantaa ctnggaaaaa gaaggccttt 420
tccaagggac atcgtcact gncctgatgc ccngcagtg nacacttacc gactcagntt 480
tccaaagatc ctcaat 496

<210> 255
<211> 377
<212> DNA
<213> Homo sapiens

<400> 255
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cttctccatg ttcatgcatg tcttttaacc cggaacaag aagactgtcc ataggtctag 120
acaatggmac aatctcagag tttatatgtt cagaagatta taacaagatg actcctgtga 180
aaaactatca agcgcacag agcagagtga cgatgatcct gtttgtcctg gagctggagt 240
gggtgctgag cacaggacag gacaagcnat ttgcctggca ctgctctgag agtgggcagc 300
gcctgggagg ttatcggacc agangctgtg gcctcaggcc tgcaatttga tgttgaaacc 360
cggcatgtgt ttatcgg 377

<210> 256
<211> 245
<212> DNA
<213> Homo sapiens

<400> 256
ctccagcaac aactgtttct tgtgactttc tgtgggactc tgaggaatgt tgggatgata 60
atcacaggaa ccaatggctg cctctggaaa gcccataatt ctgcacattc atggagcttc 120
actctgattc caaatccaga aagaccacca tgtcacttat ggagacactt gaaatccttt 180
ccacatcttc actcatcacg cctggggtga gaactaggaa tacgtgaata aaccaataac 240
acgtt 245

<210> 257
<211> 721
<212> DNA

<213> Homo sapiens

<400> 257

agtcaagaaa	acttgnnggg	gcccgggaacn	cctatnttgt	ncagntgggc	ncntnccttn	60
tgggntantt	anaaccctnt	nnggagactt	ttnatgctgg	gtggttgggg	acccatttta	120
annggccttt	ngaggggttt	ttttttntta	aagggttann	ttttnaaacc	gggcntnggt	180
nggggttttt	ggcngntttt	ttgaacaggt	ccncttaaaa	aaccagaagg	gcttgccaaa	240
aagaaatggc	ttttngnaat	gggcattccg	gctttcgnat	nccttgaaaa	attncgggca	300
aaacacttac	gacttaggaa	gntttgctta	anggccaaac	acgaaagatg	ggcccaaaga	360
aacccaaaact	cgtaaggggg	actttccaaa	accccaagta	cttctcttgc	ccaaacactt	420
gtacctcaag	tttcatttgc	ccaggaagaa	gccatatgaa	gcctcacaag	tggccttgca	480
ctttacccca	agtaagccct	tggaaaagtg	tggggggccc	cgtacccttt	tgtacccaag	540
ccggggaagt	taagccgcct	tgctcttacc	ttccttcctt	gggtttcacc	tatncccgt	600
tcacttggca	ttgcccaagg	gggtttcttn	tttcttggag	gggcacaaaag	ccccaaccac	660
caccctggtc	ttttttgggc	ccactttctt	tccaagccna	aaaattaaga	tttgggctct	720
t						721

<210> 258

<211> 345

<212> DNA

<213> Homo sapiens

<400> 258

accgtggccc	catctattat	ttttgaagag	gaaaactcct	ggngccaaaa	agtccaccga	60
tccttggttc	agacaaggac	ttccaattgc	ttaatgtcag	atgaataactg	aaaggtcacc	120
agaggataca	ccacggaaca	cagggaacac	atgactattg	aagtgttgaa	gattccagat	180
gaaacgtttt	ttaaaatgta	agcctacact	gcagggcatg	gtgttggtgcc	tggagtcccg	240
gctacgtggg	aggctgaggt	gggaggaccc	cttgagccca	gaaattctag	tgcaacctga	300
gcaacacagt	gaaacctcat	ttttaataaaa	atatttttta	agcct		345

<210> 259

<211> 308

<212> DNA

<213> Homo sapiens

<400> 259

gatttctttt	caaaagttaa	ctttggtgta	gcctctggtc	tggggcgga	gatgagaatg	60
agagggcagc	ctgaccccc	tcctgataag	gaaggaccca	gcgcataacc	tgttcaggat	120
ctggagccgc	acaaacacct	gactcgcccc	ttcaaaaaca	gatccgcgga	atggctcggg	180
acacaacaag	aaattgccc	caacctgtga	cggctcattt	ttaccgacag	tgggagggcg	240
gcagtcggaa	ggaatgccca	tttctccggt	gttccttccc	agaagcaaaa	gaacgtgttt	300
gtttatgc						308

<210> 260

<211> 517

<212> DNA

<213> Homo sapiens

<400> 260

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caggggaagaa	acacgtgccc	agcctgccat	ctgccctcct	gtcttggagc	caggctcttc	120
caccagcttc	cttcatcttt	taacacttgg	tgaagaggaa	tgacacgtca	gtcaaagccc	180
ctggccggtg	ctcatggagc	atctggcagg	aggaagcccc	ttcctggctg	gcctccatt	240
catcagtcag	cgccgcaggc	tgggccaggg	acagctgtgg	aacctgagct	gggaggcagc	300
tgtgaaaggc	aagaaacaag	gaaaggggac	agaagtcacc	cggtcggtga	gccagctcgg	360
aggcaggcag	agaaagcaag	agaaggggcc	tctcctgcgc	tcctcctaac	ctcccaggtc	420
ctcccaaaag	gtcccaaac	cttcccaaac	actccccagt	ctccttctctg	tccccaccac	480
catccctntg	gccctgattt	acaagctggg	cagtcac			517

<210> 261

<211> 94

<212> DNA

<213> Homo sapiens

<400> 261

ggcagcccca tgaatatgaa gatacttggg aagtctttac tacagagcat gatttcagga	60
atgatgaaac aataaatgag aatctggtat taat	94

<210> 262

<211> 342

<212> DNA

<213> Homo sapiens

<400> 262

ttaagtcgaa ctgnnggagag gaanagaaa acagagtnnt gttctgtngn gcatgctggc	60
gtacagtgcc acaatcacag ctccaccgag ctccaactt ctggactcac atgaccttc	120
tgcctcagac ttccaagtac ttgggactac agtcacgaat caccacancc agcttggann	180
gantttttta ngggnaaana ccagtcaatt ggaactggaa ttatatgact tggggccaaa	240
ataactgtgg tcagctgact tgttaccgta tttaatttta attttggagc ttgtattcaa	300
aagctattat atgaatataa gaataaatga tttttttaac at	342

<210> 263

<211> 520

<212> DNA

<213> Homo sapiens

<400> 263

ttaagttaga tgnntgggna ggaagngaaa gacananaca tgaanggagg anggnccnag	60
nnnggacnnc aagatgccat ctataagcca aagagaagcc tnagangaag ccaacctgac	120
tgacaccttg ttcttggact tctagctttc agaactgtgg gaaaagaaat ctggtgagtc	180
atcagctctg cagtactttg ttatagcagc ccaagcaaat gaatatacct tccttgacta	240
cttcactcta taacgtgcaa atacctcaac ttcagacca ttacatggt tattcactgc	300
ctttattggt agtcatttgt gtcttcccca gaagactgaa gctattaaaa gactgataat	360
ctatttnata tcttttggna ttatcaagct caacatggta tcttcccaca ataaaaattt	420
gactttctgt actcttcctt ccattaatgc ccgagtgaat atatggctgg tagtggtttg	480
ctgaagtaaa gcggattctc ctgcctgaaa aaaaaaagaa	520

<210> 264

<211> 566

<212> DNA

<213> Homo sapiens

<400> 264

tgtacaactg tgatccaaagt caacgtcagc cataaatcct tcttcaaaaa attcactgga	60
tacctagaag aaaatgaaac acctttactg ttacattatg gtacctagcc tccaagaaga	120
ccccgttgtt cccactctt ggtattcaca cctttgtata gttccctgct cactatacca	180
nagcgggtct gcgtgaccat aaagaagtgc ggaagtgtcg gcgcacgtt tctgagacta	240
gtttataaaa ggctgcagct cccatctctc tcagatcaact tgctctgggg gaaaccagcc	300
accatgcagt gaggacattc aggcagcaa gcacccaggt gatgaggagc tgcattccacc	360
aactgtgagc gagccccgag ctccgcagcc ctggccgaca gcctgactgc agccccagga	420
gacgctctgc gccagaatcc accagctgag ctgctcccag accctgactc gtaggaactg	480
tgagatcatc aatgtttgtt ggttaaagct gctaagtttt ggggtcactt gtgacacagc	540
aacagataat attcttccct aataga	566

<210> 265

<211> 334

<212> DNA

<213> Homo sapiens

<400> 265

ggccgacaag ggagataaat tccgtaatgg gagctgoggc cctgctctcc tgtcctggtg	60
gagctttggc tgatggaaaag gattcagttg cctgtctgaa cagtgactac catgaactct	120
acatgctgtc tacttctaac cctctttggc ctgactccag cttcaacacc tggaaacatg	180
gcaaaaagaa cagggggaca ttggcttgga ctggagccac gtgtcagagt ttgactcaag	240

gatagttgat gtagaatgaa gagaatgagc aggggaacaag aggtataaat gtgcatgatg 300
 tttattcatt caacaaacat catttgagcc cctg 334

<210> 266
 <211> 338
 <212> DNA
 <213> Homo sapiens

<400> 266
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 ccctggactg gaaaggactg gaacattggg agtggaaagtc cacattagcg gaatagtatg 120
 ttctgaaggc atttgagcag atgaaaacct gatacatgag acataaaacc tgaggaaaat 180
 tatttcatgg gaacggtaaa aatggtggag agggtaaat gggcaaggga gaagaacgga 240
 ggagaggag agggaggtgc tgctgaactt atttcaaaga agaagaagaa aaaaaatgat 300
 ctctgtttt tcattaaata atggatgctc tccaggcc 338

<210> 267
 <211> 432
 <212> DNA
 <213> Homo sapiens

<400> 267
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 gaatagagaa atcagcaaag gacggtgtgc agggcagctc ccttctcaag ccatgtgggtt 120
 ggcagaccct gtgggagcct tccgggaccc acccttccat cctctgcaca gccgctaaag 180
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 cagttgattg tgttttctta actgtagact ctaatctctc caggtggaat ctttaattgag 300
 gctggccctg ccaggggcatg tacagggtcc tgggaattca acagaatgaa ttcaacagaa 360
 tgcattggat ctgatgtcag aaatgccttg cttgtattct gaccatatca catatgagct 420
 atgtggtgat tt 432

<210> 268
 <211> 255
 <212> DNA
 <213> Homo sapiens

<400> 268
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 caccctcagtc tcccaagtag ctgggactac aagtgtacat caccatgcct ggctaattga 120
 ttgtcaattt ttgtagagat ggggtatcac catgctgccc aggctgcaa gtctttatgt 180
 actttccgac tcatcaaaag actaaattat gttcaatact attttagcat taattaaaca 240
 tattttgcta tattg 255

<210> 269
 <211> 428
 <212> DNA
 <213> Homo sapiens

<400> 269
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 aacctctgcc tcccgggttc aagtgattct cctgcctcag cctcctgact agttgggact 120
 acaggcacat gccaccatgc ccagctaagt tttgtatttt tagtagagat ggcgtttcgc 180
 catattggac agactcctga ccttatgac tgccctcctc ggctcccaa agtgcaggga 240
 ttacaggcgt aagccactgt gccgggcat gcattcattt cttacacgta tcattgttgt 300
 tttaaaagtg aaaagcctaa gaagagatgt taggtttgct tgttagggta ggattaattt 360
 ctaggtacac caagccaaat ttncagtcct gctgntaaca cccaacttct tgngaaccct 420
 tttttttt 428

<210> 270
 <211> 286
 <212> DNA
 <213> Homo sapiens

<400> 270
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 ttctgcagtt tttgtggaga gatcgtttca ccatgttgcc caggcatttc tcaaactcct 180
 gtactcaagc aaaccttcca ctttggcccc aagtactggg attcaggcaa gagccaccgc 240
 gtctagccaa ttatacaatt tttaaaataa attgaaatgg tcgttg 286

<210> 271
 <211> 285
 <212> DNA
 <213> Homo sapiens

<400> 271
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 gaaggactcc ccgaggagct acctcatcaa aaaatacagt ttccactttg cgatgatttt 120
 atcccccttg cccaaccga ccagcaaccc cagtattcca gccctcact ctccacaata 180
 cccttaaaaa cctcatccc agaactcctt gaggagatgg atttgagggt cccttctgtc 240
 tccttgcttg gccaccctc aatcattaaa ctctttttct gctgc 285

<210> 272
 <211> 326
 <212> DNA
 <213> Homo sapiens

<400> 272
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 aagtatcatc attagtggaa tactgactga aatgaatcaa gatctcttcc tcaaccaaca 180
 tgacagaaac attccaaagc tgccttcac aacctagggt ctataagaaa ttaaagtcc 240
 aatgctctaa tatatgctat tataggcaat gagctcttaa tctatgcat ctagaagact 300
 ggctatgtat cacccttggg agaact 326

<210> 273
 <211> 362
 <212> DNA
 <213> Homo sapiens

<400> 273
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 ctaggcactt tggagtagca cccaccagct gtgtgaaggc caaatggatc ttaaagagtt 120
 gtgcagtggg actgaaagag gagagtcact atttcagaga taaccaaatg ttaaaaaaaaa 180
 gagttttgaa aacgtggaca agcttcaaata gaaaagaaga ggatgacaga ggacttggag 240
 gggaagaaaa caaaaatcat aatcatagac aatattgttc accatgtaca agacagtgtt 300
 ctaagcagaa tgagtgcctt tgggtgatgat acctcgtcag gaccacagta aacttacc 360
 ct 362

<210> 274
 <211> 105
 <212> DNA
 <213> Homo sapiens

<400> 274
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 agcaagacac tgtctcttaa aaaaaataaa taaatacttg ttttg 105

<210> 275
 <211> 548
 <212> DNA
 <213> Homo sapiens

<400> 275
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cctcgacctc	ccaggctgag	atgatcctcc	cgctcagcc	tcttgagtag	ctgggactac	120
aggcgcgcac	caccatgcct	gctgattttt	tgtagagaca	gagtctcgcc	gtgctgcaca	180
gactagtctc	gaactcctga	agctcaagtc	atctgcccac	ctcagcctcc	caaagtgtg	240
ggatttcagg	tgtgagccac	catgcccagc	catattcttt	tttttttttc	aatngnnggg	300
aaattcccnt	ancataaaaat	taacttttta	aacngaacaa	ttcagggggg	ntaaaaanat	360
tnanaagggg	ggactannan	aaccttngnt	tagttccaaa	anattttnt	taccccnca	420
aaaagcccan	acnttggang	nnggaacttc	ccntttttcc	cctnntccca	gccnttgaaa	480
acnacnaann	tgggtttttg	tggntngnct	nttttggnnn	tttnanataa	angngggttt	540
ttaatatg						548

<210> 276
 <211> 358
 <212> DNA
 <213> Homo sapiens

<400> 276						
tggggagctc	ctgcttaagt	ccganctgng	atatgttccg	tttaaggctc	tgaagatggg	60
gagagaattc	tggatgatcc	aggtggggccc	ttaataatgg	tcccttatta	cagagagcca	120
gagggagatt	tgaactgac	aggagaagtc	agtaagacca	tgaatgcaga	gattcgagta	180
atacggctac	gagccaaaag	atgccagcag	ccacctgcag	ctggaagagg	cataaatgga	240
ttctccccta	aagctcccag	gagtgtggcc	ctgctgacac	cctgatttca	gccccatgat	300
actgatgttg	gactggtcct	cagaactgtg	aaagaataaa	ttcctattgt	tttaaacc	358

<210> 277
 <211> 183
 <212> DNA
 <213> Homo sapiens

<400> 277						
aagnatttgg	aggtgagtc	gcttcaaccg	tgccatgagg	acctcaccct	aggaggtggc	60
agagacaccg	gaggaattgga	acccaagtca	tgggaataacc	tcacattgca	gagccacctt	120
gctaattctt	gactgctcac	ctctggacta	tcaactggaga	aataaataca	cttttaagtt	180
ggt						183

<210> 278
 <211> 381
 <212> DNA
 <213> Homo sapiens

<400> 278						
ggggagctcc	tgcttaagtt	acgaagctgn	nattcattct	ntagaagggc	atcanaggaa	60
gataaagaag	gatcctcaat	gtcagacatc	tgagcccaag	ctaagccatc	ataatccctg	120
tgactgtcac	atatacatgc	cccactccaa	ctaatacaatc	gaccttgtga	cattcctccc	180
ctggacaatg	agtctcatga	tctcccaacc	ctgcaccttg	tgacctctcc	cctgcccaca	240
agagataacc	accttttaagt	gtaattttcc	actacctacc	caaatacctat	aaagctgccc	300
caccctatc	tcccttttgc	gactctttgt	ggactcagcc	cacttgcacc	caagtgaat	360
aaacagcctt	gttgctctca	c				381

<210> 279
 <211> 459
 <212> DNA
 <213> Homo sapiens

<400> 279						
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ctgtactggg	gtgaagagta	tcttccaaaa	attcacatct	accagaaca	tcanaatatg	120
aacttttttt	gaaatacgtt	tttgcnatg	taatcanata	aaaatgagat	nataccanat	180
tagggtnngc	ccttatccaa	tgaatagtat	ccttaccaaa	agacggaaac	ttggacatgc	240
acattccggg	ggaacctcca	tgtgatgggtg	aacactaaga	ctggagtgat	gtgtctacaa	300
gccaagaaat	gccaagattt	ccagcaggca	ccagaagcta	gtagagaggc	atggaacaga	360
ttgtccctcc	gaacctccag	aaggaaccaa	gcctgcagat	gccttaattt	cagacttctg	420
atgttcagaa	ctacaaaaga	ataaattcct	gttgctttt			459

<210> 280
<211> 281
<212> DNA
<213> Homo sapiens

<400> 280
tggggagctc ctgctttaag ttagaactnt gggacagnat gtcnctcnna canttttattc 60
ccggnctggaa tgcagtggtg tgatcctcct gcctcagcct cctaagtagc tgggactaca 120
gagacggggt ttcacatgt tgaccaggct ggtctagaac tcttgacctc aagcaatcca 180
cccacctcgg cctcccaaag tgctaggatt acaggcgtga gccacctcgt ctggccaata 240
aacagaactt acaattgatc tnaaaaaaaaa aaaggccggc g 281

<210> 281
<211> 252
<212> DNA
<213> Homo sapiens

<400> 281
gaagatgagg atactgacag agtaaaatca tggagaaaat ggaagaactg aatgcagaca 60
tgagaagtta aatcacagaa gaaaagttaa gcaggaactt gagagagggg tgaactgtga 120
caagttgtta gaaggaagac caggactcac caggaaaata ataaattgtc cttgatcgta 180
caaaagaatg tgtaaatgga attttcctaa taaatgtgag agaattgtcag cataaatatt 240
gatttttaaaa ac 252

<210> 282
<211> 380
<212> DNA
<213> Homo sapiens

<400> 282
atggagtctt gctctgttgc ccaggctgga gtgcagtggc acaatcttgg ctcaactgcaa 60
gctccgcctc ccagggttcat gtcattctcc tgctcagcc tcccaagtag cggggactac 120
aagcaccgcy caccacgccc ggctaatttt tgtactttta gtagagacag ggttttactg 180
cgtaaccag atggtctcga tctcctgaac ttgtgattcg cccacctcag cctcccaaag 240
tgctgggatt acaggcgtga gccactgcat ccggcccagt aatcttttaa accacactca 300
ttgnctaatt ttgctagcaa ttcaatataa actttatgct ttgaaaataa aattggattc 360
attttgaaga cttaaaaaaag 380

<210> 283
<211> 120
<212> DNA
<213> Homo sapiens

<400> 283
gtcatctttg atctatcaga ttttaaggca tcatctgaca gcagatcttc aataagtatc 60
tgtggcatga aggaaaaggg aaaggaaaaa ggaaaggaaa aaggaaagga agaaaggaag 120

<210> 284
<211> 317
<212> DNA
<213> Homo sapiens

<400> 284
gttcatgtgg aaccctgggt tctcctacat accatttgga gacgctgggg accagtatta 60
aagaaaaatt atccagacac ttgtaaaaat gcacagtgat ggacattgag gaagatattg 120
tatatttggt cactcaacac tcattccaac gctctcctag ttgaccttc tatctactac 180
aggctggaag actgactcta gtggagcctg ctgtctgaaa ctccgaagtc tgaccaaagc 240
agcaaccccc tctccattat cctgttccc cctcctctca cgacataaac aaaagtgtaa 300
gcatggaaat cataatt 317

<210> 285
<211> 300

<212> DNA
<213> Homo sapiens

<400> 285

atgtaaagag	ccatgaaaca	gatgtgagag	atgccctgac	ttagaagccc	cctcttcaca	60
ggtgcccaaca	tctcttgaac	aactcagcag	gcatgggttc	aaagaccccc	ccacacaaaa	120
tgcccgatta	tgagtcaaca	ccttccagga	agcccaaagc	attttcctta	tctggagatc	180
ctctgtcagt	caaattccac	tattatgaat	acagcaaaac	aatacagaag	aatgagacc	240
attatgtaac	agaaatagat	gtcacagaga	tcacacaata	aagctcacgc	aatttactcc	300

<210> 286

<211> 436

<212> DNA

<213> Homo sapiens

<400> 286

ctctgttgcc	caggttggag	tgcagtgggtg	caatctcggc	tcactacaac	ttctgcctcc	60
caggtccaag	ctattctcct	gcctcagctt	cctgagtagc	tgggattaca	cgcacacacc	120
accatgcttg	gccaattttt	gtatttttaa	agaggtgggg	ttttatcaca	ttggccaggc	180
tggtctcaaa	ctcctgacct	caagtgatcc	acctgcctcg	ccctcccaaa	gtgctgggat	240
tacaggtgtg	agccaccggg	cctggccaag	agttacttac	attttttaat	gacacattat	300
ggcattttat	gggagaaaatt	cttctgctgt	cggcaatatt	cgatttgagg	atttgaccag	360
gtctctggac	atctccacac	gtgtcaatgg	gctaaggtgc	tttaaataaa	caaggttatc	420
tgcataagtc	cacaat					436

<210> 287

<211> 388

<212> DNA

<213> Homo sapiens

<400> 287

attggcgtgc	ttaaagggct	gaccatctga	tgtacaggaa	atggaaacta	ctctctgaaa	60
agcaagtgat	ctccagccg	cacccattta	ggagaccagg	attttatttt	gatccacagg	120
agactaaatg	agttagaggc	cactcctgta	tcaacagagt	ttgttactta	aatgacagta	180
ggcggttcg	cagaaggaac	accaaatagt	ctgactatct	accaagaaga	gagtgtttga	240
acacatgtgc	aacctcttga	ctgtggtgtg	tggggcgagc	tttaataaga	aagagctaaa	300
tctgcttgat	gtgggaatat	attcaacaca	tgttaagtgc	taaaatatct	aaagtaata	360
aatgtctatg	tactccatat	tgttaaag				388

<210> 288

<211> 324

<212> DNA

<213> Homo sapiens

<400> 288

cggctgaatc	acttgagctc	aggagttcaa	gaccggcctg	gccaaacatg	cgaaaaccca	60
tctctacaaa	aaatacaaaa	attagctgca	cgtgatgggtg	cacacctatg	gtccccgcta	120
cttgggaggc	tgaagtggaa	ggattgcttg	agcttgggag	gcggagggtg	cagtgaacca	180
agatcatgcc	actgcacgcc	agcctgggtg	acagaggcag	acctgtctc	taaacaacaa	240
aaaaccccac	tgaattgtat	acgttaaaag	gactttacat	cacgtgaatt	acatctcaat	300
gaaaaataaa	atactgaatg	aacg				324

<210> 289

<211> 565

<212> DNA

<213> Homo sapiens

<400> 289

gtggaaagag	aatagcttgt	gagagtgtat	gagtggatg	aagtgggtcag	atgagagagc	60
gcggcgga	tggagagaag	cggagaactt	gatgcatatt	ttggaggcaa	aatcaacaag	120
attggctgat	ggattaaaag	cagaanattt	tgccatanag	aaatctcttg	cttttcaatc	180
tctccaattt	gggaaccaac	caaccaacca	gtctaccaac	cagccaacga	accaactact	240

caaccgggtca	actgactcct	cccggagaca	aagattggag	aattgcttga	atctggtaca	300
aagactaaag	caaagtaata	ctgtatcatg	cacagacctc	aactctgtga	agacagtccc	360
tcatgctgta	ggaagtcagc	cttgaatatc	taggcttagg	ggaggctgag	aaaggtcacc	420
actggagaag	taagcggttg	gggcagggtca	ggatccaggg	ctctcaattc	ttatggagag	480
attttgcttt	tttaaaacat	canacctgct	ggtgntgcac	tcagttttct	ttcttataaa	540
aatcaactct	ttttgagatg	tactg				565

<210> 290

<211> 343

<212> DNA

<213> Homo sapiens

<400> 290

canattgcng	cncnnnggna	aaanaaacag	ccatgttgct	cacacaaagc	ctgtttggtg	60
gtctnttccc	acggacacgc	gagacaatga	ggagatacaa	ggtctcgctg	ttctacctag	120
gctgttctag	aactccta	gtcaagctat	cctcctgct	nggcctccca	tgctgttggg	180
attacagcta	taaattcata	caattatcag	agtttggttt	tggtcaagtc	ataattgtga	240
gtgaagaacc	atggaaggag	aacatttctt	gctcatcaac	tactttcata	aaatcaacaa	300
tttgcttaag	taaagtcttc	aaaataaata	ctgattttta	tga		343

<210> 291

<211> 403

<212> DNA

<213> Homo sapiens

<400> 291

ggttttgctc	tgtcacctgg	gctggagtgc	tttcgtgcag	tctcagctca	ctgcagcctt	60
gtcctcccca	gctcaagcaa	ttctcctgcc	tgagcttccc	aaatggctgg	gactacaggg	120
cttatgtctg	ggatcctcac	agagactaga	agtgtctccc	atccccatcg	cagtcctctg	180
cacttcctgg	attgtcgagc	ggctccctgc	ctctgccett	ttgtattcgg	agctacagcc	240
ttgcctcccc	tgttccacc	accctgacca	ccccccaaca	ccatcccgt	gtcagctccg	300
ccgccaactg	aggcgacacc	tgttcatgga	aaccctgtga	gcctcttctg	tatccataca	360
caataggtaa	tgntgnttta	cgtgtttcaa	aacattaatg	gtg		403

<210> 292

<211> 185

<212> DNA

<213> Homo sapiens

<400> 292

cccagcccca	cgtaaacaag	cccagctgtc	ctgctagaga	ggttctgggg	tgaggctgcg	60
aggagaagag	ccttgatttg	aagccttaag	agtgaccctg	agcnagaacc	accaggttaa	120
gctgtgtctc	cattcctgag	ccacagaaac	tatgagatga	taaatgttta	ttgctctaag	180
ttgct						185

<210> 293

<211> 231

<212> DNA

<213> Homo sapiens

<400> 293

agacaagggtc	tcactctgac	accagggctg	gagtgcagtg	gtgtgttcat	agctcactat	60
aacctcgaca	gtgagatcct	gagctcgagt	gatcgctctc	cctcagcctc	ccaaagtgat	120
ggaattatag	gcgtgagcta	ctgtaccogg	ccactgttgc	tgttttgaaa	gggagccctc	180
ctctccccta	ccacattcta	tattaagaaa	ttccaaatta	aatgaagaga	t	231

<210> 294

<211> 153

<212> DNA

<213> Homo sapiens

<400> 294

gtgaggacac	agcaatcctc	cagaggatgc	agcaacaaga	caccatcttg	gaagcagngc	60
agccctcacc	agacaccaaa	tcggccagcc	cattgatctt	agacttccca	gcctccagaa	120
ctatgaaaaa	taaatttctt	ttgtttataa	atc			153

<210> 295
 <211> 289
 <212> DNA
 <213> Homo sapiens

<400> 295						
ccacggaact	gggattcctg	aaaatcaaat	acagaactca	tcataccatt	ggttgaatta	60
caatgttcta	ctttaattgg	gcacttacaa	agtaattctt	caatcagtgt	ctctaattgtc	120
tcactgcttc	ccaacaaaatc	tacgaagaca	gaacaaaaaga	tgcaacttac	agaaacacag	180
aaaattaaga	ctgtcagagg	acatagtgtc	tgattcggag	gtgggtggga	gagagatttt	240
cactgaatag	cagaataatg	gaagattatg	ataaaaaataa	ttaatggtc		289

<210> 296
 <211> 275
 <212> DNA
 <213> Homo sapiens

<400> 296						
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acctgaccat	gctggcacct	tgattcccag	cctctataac	tnnaagctgg	gcaactacca	120
tnncagaaag	tgtaagaatc	aaatttntga	tgtgtataag	ccatgcagnc	tatgatactt	180
natgatagta	nccagantcg	actatnatac	agggncntat	acatatttta	tgcttctntag	240
tnntcatctg	taaaataaaa	agtttgaaaa	caagg			275

<210> 297
 <211> 292
 <212> DNA
 <213> Homo sapiens

<400> 297						
gtctactctg	tcgcccgggc	tggataacag	tggcaggatc	acagctcacc	gcagccttga	60
cttcctgggc	cctaagatca	ggtgatcctc	ccacctcagc	ctcacaagta	gctgggacta	120
cagacaccca	ccaccacacc	ttgactaatt	tttttatctt	tattttttgt	aaccgggtctc	180
aaactcctgg	cctcaagcca	tcctcccacc	tcacctccc	aaagcgctga	gattacaggc	240
atgagccact	gcgcccacac	tagaccctaa	taatgaataa	aacattaaaa	tt	292

<210> 298
 <211> 577
 <212> DNA
 <213> Homo sapiens

<400> 298						
acggagtcct	gctcttattg	tccaggctgg	agtgcattgg	cgtgatctcg	gctcaccaca	60
ccctctgcct	cctgggttca	agcaattctt	ctgcctcagc	ctcccaagta	gctgagatta	120
caggcatgca	ccaccacact	tggctaattt	tgtattttta	ggagagatgg	gtttctccat	180
gctggtcagg	ctgggtcttg	actcctgacc	tcagggtgatc	caccacacctc	ggcctcccag	240
agtgcctggg	ttacaggtgt	gagccaccac	gccaggcctt	ttttttaatt	ttagtaagaa	300
agaggtctcc	ctatatgtgc	cagggttggcc	tcaaactcct	gggcttaaan	aagtcctcct	360
gcctcaacct	ctcacaatgc	tgggatcgca	ggtatgaaca	accacacca	accnggtan	420
gggtattatt	atcatcatca	acaatggat	tctttgggtc	tcttaaccaa	actgaatgcc	480
cgnacctctt	ttcacaatgg	cttttccctt	ctggantggc	ctttggcttt	gttngnatct	540
atgtttcaca	tcantaaaag	ccccctctca	ggatgcc			577

<210> 299
 <211> 148
 <212> DNA
 <213> Homo sapiens

<400> 299
 gtgaggacac agcaatcctc cagaggatgc agcaacaaga caccatcttg gaagcagagc 60
 agccctcacc agacaccaa tccggccagcc cattgatctt agacttccca gcctccagaa 120
 ctatgaaaaa taaatttctt ttgtttac 148

<210> 300
 <211> 338
 <212> DNA
 <213> Homo sapiens

<400> 300
 gaagggaggc agcccagca gacttactga aggatgagct gatctttggt caaatcctgg 60
 ctttaccact taatagctgc acacttcctg cagttcctcc cacttatctg agtctcagat 120
 gctccccgtt aagatgggtc caatagctac cactgcattt acctcgaagg agtaaattgag 180
 gattaactaa gcgcctgatg tgaagaactg tgcctgcagc ctttgaagga agccaggcctt 240
 tcgaggatgt gtgaggcctg gggaattcat ttgtttcaaa taaccatcaa tgagattcca 300
 gatttcctgc ccagagttaa aatcgggtgtt gaaaaccc 338

<210> 301
 <211> 334
 <212> DNA
 <213> Homo sapiens

<400> 301
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 ctcanatata gnnacttggt caccacagta naggactcan aaatacccat ggcnaacnac 120
 tggagatcct cactgnctca ngggcnnagc tggtttgaac acggtcttct cattgnttna 180
 ctgcccgccca ttnaccctca aggtccattc tgtgccaggc cattgcatgt tctcaaggca 240
 atgaccctgg agaatagaata gccatgngtg gcagtataag tgcttgggaag gtgacttagc 300
 ccatttgaac aataaaaactg tcttttaaag aggt 334

<210> 302
 <211> 448
 <212> DNA
 <213> Homo sapiens

<400> 302
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 annaaatcna gcccacacca nttgaagtca ctgatgtaac tcagcaaccc acttggntcc 120
 caatcctgga aggatacana catgttcatg angcttcngg cgcataatgtg acanaacttt 180
 ccatgaaaacc aactggccat gantcnaagg actccttcac agagacaaat ccatctcctt 240
 caaataccca nattctattg gtgnnggaaa ggcaacgatt tgaaaaactg gagcatttta 300
 cctaaaggga ttttaaaaaa tcccaccatt gctttatcac aacttggggg attattantg 360
 gatttccctc cctcttgctc ccanaaggng gactttggag aaaaagagag tttgggagct 420
 aagaataaac cgcatttctt gcatatgt 448

<210> 303
 <211> 216
 <212> DNA
 <213> Homo sapiens

<400> 303
 gagagacggg gtttctccat gttgcctagc ctgggtctcga acctctcacc tcaagtgatc 60
 cgctgcctt ggctcttcaa agtgctggga ttacaggcgt gagccaccgt gcctggccct 120
 agcaagtcac ataatttata gagggtaact ctgtcgattt taaacttcgc gtagtctgac 180
 ccattcattc atccaataaa cacgtattca gcacct 216

<210> 304
 <211> 260
 <212> DNA
 <213> Homo sapiens

<400> 304
catgtgagaa cacagtgaga aggtggccat ctacaagcca agaagagagc cttcaccaga 60
aatggaattg gctggcatct taagtttggg cttcccagcc ttcaaagctg tgagaaaata 120
aatgttgttt aagcccttgg ngaaaaagac aaannaaact gcttttcaaa aaactnanna 180
anaanttggg cggngncggg ggnncnctnt gtgnnctttc nacacnncgg gnnttttttt 240
naaanggggg gggccccc 260

<210> 305
<211> 520
<212> DNA
<213> Homo sapiens

<400> 305
gctcagctca tcatgaagaa tgtccatgtg acttttggtta ataaaataat agatccagtg 60
gactgtagtc tgttttaactg agacctcaca cataatgtca tgggttgacag ttactgggtg 120
aaggaaatcc atgttgggct tctgtggatg ctggattctt tccttctgag aagaaatata 180
acacactgac tttgaggtga tgggtggagaa aaagtacaag cagaagactt ttcncaactt 240
ctccataggc tggagtgcag ttgcatgaac atggctcaca gcagcctcaa cttcctgggc 300
tcaagcaatc ctctgcctc accctccata gtaagctggg accataggca ggtgtcacca 360
caccaggtt ctgtaactgg agactgccaa tgaaactgcc aaaaggcaga ttaaccagga 420
gaaaagacat acagacttca tctgatggtn acagggttaat ttttacatgc atggaggcct 480
tcatagaaaa agaagtgaan gccctaaaga agtgatttta 520

<210> 306
<211> 393
<212> DNA
<213> Homo sapiens

<400> 306
nnactgncgc actacagctc acgactgcng ccagcatact gacaatgacg cagcccgagc 60
ctgggctgtc tctaccacac ggaccctctt gtggccctc ctggacacac ccatgttcct 120
cccagatcac ccctcgtgga cccccacaa ccaactgaact attctccaca gctacacttt 180
tgccatttca agaattgttat gtaaatggaa tcatacagta accttttgga attggctttt 240
ttcactcagc ataattctct ggagagttca tccaggttgt cacagggtatc aatagttcat 300
ggtgcggacg tacaatttaa cgtttcaccc accaaaagac attgggggttc tttccagttt 360
ttgactgcga caaataaacg aatataaaca ttc 393

<210> 307
<211> 304
<212> DNA
<213> Homo sapiens

<400> 307
gacttctcta tcaggcagca cccaccagag agcagttctg aaactgagac taccagatca 60
gaaacaaaca agcaaacaaa aaaagaccca taggagctgg gagtgcccat ccaagtacat 120
ccacatcatc cagtaaaaaga aacagaacct tgaagtcaaa cagactgggt agcacacacc 180
tcctccgttt gctagttgtg tgactaaggg cagtttctta actactctgt gcctcctctg 240
taaatatcaa tgtgctaata atcccacctc gctggatcat ttcaaaataa aatgcataac 300
attg 304

<210> 308
<211> 365
<212> DNA
<213> Homo sapiens

<400> 308
gcctatccag taacagagtc tactgcatca tattaactga taaaccagg atgacaagag 60
aaacatggga ctactcttc atttgcatg actccagcta agagcttcag ttttcatgct 120
ttgcttcaaa attattgggt agccctgtgc taatttccat ctcatcctag aagtcagtta 180
ttttataagc atgtaattgc ttataaaaaa aagctgggaa ggaagaacat tttggaagag 240
ggaggcatat gcctgaaaga agaaggggat gggaatacag tcagttgcta ttttggccca 300
naaatatgtc aggcaaacat gtaggnattg natttctctg attgncctaa ttattggaga 360

<210> 309
 <211> 298
 <212> DNA
 <213> Homo sapiens

<400> 309

tgggactcct	gcttagtcga	actgagccca	gtgccgtggc	tcatgcctgt	atccagcctt	60
ttggangccg	ggcaggcnga	tcacganatc	angaaatcaa	gancatnctg	gccaacgcaa	120
tgaaaccccg	tctttaccaa	aaatacaaaa	aaattaacca	ggcgtggtgg	cgggcgcta	180
tagtcccacc	tactggggaa	gcttaggcag	gaaaattgct	tgaacctggg	aggcagaaat	240
tacactgcct	gagattgcat	nactgcctnc	acctgggcaa	caagacaaga	ctccgtct	298

<210> 310
 <211> 459
 <212> DNA
 <213> Homo sapiens

<400> 310

gtcaccaggt	atgcccctgg	gctcctgccg	cagctgatcg	ggtgctaggt	gctgaggata	60
caccgtctgg	gagaaagcaa	ttggaagaaa	tgcaaagctc	ttcaaaggag	acctataaag	120
tcacttttgg	tttgttcatt	cttctcatgt	ttctgcattc	tgggcattct	cctaaattgg	180
ggagaaaacca	aaatgcccg	aagtcaaatt	ctgcaactgt	catcaagcaa	aatgtcaa	240
gagagaacca	aagtatgctg	gattctatat	tgtaggaag	ggatggntaa	tttgattgac	300
tcttgggagc	tatttctcta	gcattaagta	attctaggga	acccttctgt	gatcatctct	360
gagtaaataa	agaaangaaa	ttgcaattca	aaaaaaaaagc	cagcgaggcc	anttcagctt	420
ggacttaacc	aggctgaact	tgctcaaaa	gggggggggg			459

<210> 311
 <211> 585
 <212> DNA
 <213> Homo sapiens

<400> 311

attccggctg	tgggctcctt	ggaggaagag	cagaggtgaa	gcgcttctca	tcccaccaca	60
tcaggggtcc	tgctcgggcc	cggtcactg	ctgatgttga	cctcggctac	ctggcagagt	120
gtgctggcca	ggtttctcca	gcatgaagtc	actctcgttt	cccttggcga	tgctccttcc	180
atcaaaacca	gagtgtccca	gctctagatt	ccccacccaa	tctcctgtgg	ctgtctcaac	240
acctccgtcg	tgaatccgtg	catcccttca	gacgactgcc	ttccgatgcg	gacctgacct	300
gccccccctc	ccatcactga	ataggactcc	ttttctcctg	gatttctctg	aggaagtttc	360
aaaatgctct	ccaggntttc	tgnggttgg	ttatcctctg	gatctttcta	aagtgaagtc	420
ctggtttcac	cacaactccc	ccgacacagt	tgaacaactg	taccnggggg	aggcttggnc	480
ctcttgcccc	atgtggggga	tgncattgna	atcatgccaa	gggccctgac	gtcanaactt	540
cacctgacat	gtgctcatgc	cggtttacaa	accttccaag	acaag		585

<210> 312
 <211> 117
 <212> DNA
 <213> Homo sapiens

<400> 312

catttgtcac	attgcaaaag	acctcaacgc	acagctgact	ccaggggtgga	aagaccaacg	60
acacgccgaa	attcatcctg	cactccagcc	tgggcaacaa	gagcgaaact	ctgtctc	117

<210> 313
 <211> 132
 <212> DNA
 <213> Homo sapiens

<400> 313

agtttggctg	tggtgctcan	gctggagtgc	tgctgtgctg	tcatagccca	ctgaaacctt	60
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gatttcctag ccttaagtga tccccccacc ttggccttcc aaagcattgg gattacaagc 120
 atgagccact gc 132

<210> 314
 <211> 263
 <212> DNA
 <213> Homo sapiens

<400> 314
 atgaaccatt tctggtgcag aaaaggctcc gatgctgctt ttatgaagga acataatgct 60
 agcttggaga tcacacaatt gcagacctct ttcttccggt tgggaaatat actgaagaac 120
 agaagacacc tgctctccct tcacctccca ccatgattgt aagcttcttg aggcctcact 180
 ggaagaagct aagaagatgt tggcgccatg cttgtatagt ctgaagaacc atgagacaat 240
 taaacctctt ttctttataa att 263

<210> 315
 <211> 362
 <212> DNA
 <213> Homo sapiens

<400> 315
 gtctgacctg tcagtggctc agctgagatt caaaccggga gccagcacgc tgacctagtt 60
 cacctgtgcc cgacatcatg caccagacgc ccaaatgttg agcaggccag gccggcacag 120
 aaaccactgc gcacagatgg tctctcctcc ctgtcacctg gacctccaac cctccccctc 180
 agcgctccgc cccagagggg tgctgcatcg gaacttgcgg gcacaggacc tggacagccg 240
 cacttagcaa gctcttccct caccgcccac gtgactgtaa ggtggggagt ctgggaccat 300
 gggggcacc acctccagca aacacgccac aagcaccttg gaaaattcaa ttctgcctcc 360
 ct 362

<210> 316
 <211> 141
 <212> DNA
 <213> Homo sapiens

<400> 316
 gttttttggg gattgaagaa gatgaagaca ttgcaactaa taatgacact gctactacgg 60
 ttgtaggaag gaacgcacta aggaataact agaaacggat gaagaagatg atacagagcc 120
 acgctgcagg actattttga t 141

<210> 317
 <211> 508
 <212> DNA
 <213> Homo sapiens

<400> 317
 atggagtcta ctctgtcacc caggctgacc tcgactcaca gcaacctctg cctccagggt 60
 tcaagtgatt cttctgcctc agcctcccga gtagctggga ctacagggtg caggcctctg 120
 agcccaagct aagccatcat atcccctgtg atctgcacct acacatccag atggctgaag 180
 taagtgaaga tccacaaaag aagtgaat aagccttaact gatggcattc caccattgtg 240
 atttgtttct gcctcaccct aactgatcaa tgtactttga aatctccgc acccttaaga 300
 aggttctttg taattctccc cacccttgag aatgtacttt gtgagatcac cctctgcccg 360
 caaaacattg ctcttaactc caccgcctat ccaaaactat aagagctaat gataatccac 420
 caccctttgc tgactctttt tcggactcan ccgcctgncc ccgggtaaaa taaaaagccn 480
 tgtgtcacgc caaaaaaaaaa aagggccg 508

<210> 318
 <211> 404
 <212> DNA
 <213> Homo sapiens

<400> 318
 gtgggggtctt tcattggcgg cagagtctgg ggctggcatg gctgctgggc tgcttggctc 60

tgaggaccca	ccgtggagtt	ggaacctgac	ttgtcgggcg	ctgaggacct	gccaagtgag	120
gaacattcga	gttctgcagc	tgctgctaaa	accatgggtgc	atctccaggg	cccgtctatc	180
aggtgccatg	cgtgccatac	ggtgcgccac	gtgaagtgc	ccgtaaacad	gatttaattc	240
aacttttcaa	gccaccggga	tcgagaaagt	gcctatgtca	ccatcttgat	tattattgnc	300
accattttga	gatgagatta	ttgaaactca	nagaanggat	gnaagttggt	tcaaaagtca	360
cccanacaga	acctgggtgat	ttcaaaccac	agttctcctg	gctg		404

<210> 319
 <211> 237
 <212> DNA
 <213> Homo sapiens

<400> 319						
gaattgtcct	atgccaaagag	agctgccttg	ccagaagtga	cactcacttc	caggagtcag	60
cctgcatcca	gtggctgtca	aagggggagc	aattctgcag	gatcatccgg	gcccctgagc	120
tctctgtaga	acagctgaag	cgaccgcatg	gcctcaactt	ctccttccac	ccattcctgt	180
ttcctgccct	ccctgctcag	gggtaactcc	aagagcaccc	tccagtaaac	ctcttg	237

<210> 320
 <211> 218
 <212> DNA
 <213> Homo sapiens

<400> 320						
caacctatcc	aggataccat	gtttcattta	gttgtcatgt	ctcattgtta	ccagaaagtg	60
gtcccaactc	agactccaag	agagagtttt	tggacctcaa	gcgagaaaga	tttcagagca	120
agtccacaga	gtaaagtga	ggttctaaaa	cactatattt	tgggagtgca	gcaaggggtg	180
gcggaatgga	actgaaataa	caagtgggtt	tgttatcc			218

<210> 321
 <211> 226
 <212> DNA
 <213> Homo sapiens

<400> 321						
cttcttaa	gtctgattga	aaggatgaaa	cagaacggat	gtgaacaaga	gttccctgag	60
aaaggacagc	tcttagagag	ataggataat	tactggactc	aagaagatac	caaatcatgg	120
tgtgcatttc	tgctgtgtgt	ttggaagagg	aactaggatt	gttatgaaa	ggaaggatgt	180
gttcaactta	naagaattaa	acctaacca	tctgtctctt	cccaac		226

<210> 322
 <211> 177
 <212> DNA
 <213> Homo sapiens

<400> 322						
ctgaaagaaa	tataagaaat	acaaccta	actgtaatga	agtgttcctg	aacaaaaata	60
cagataagct	gtttttaa	attatcttta	tttgtatgct	catatcagga	taactccaac	120
taaggcaatt	tgtctaagta	gctcatttat	ttaaaaagaa	aagtaaaaa	agcaatg	177

<210> 323
 <211> 502
 <212> DNA
 <213> Homo sapiens

<400> 323						
gccgcacttg	gtgagagtct	tcacggacca	cagtgttgca	cgagggtgatt	gtgtttgcag	60
aggttttttt	gtccttgaag	agcacttagg	gctggagagc	aggacacatg	ctgacgagca	120
gaagctgaca	ggcttgctgc	catgtgggaa	agtccttgga	cgagttgtct	gcttgccggag	180
agggtctctg	ggctcaggta	tgaacaaaag	aaacatgctt	cacttctggg	cagaatcccc	240
aagagctacc	atgaggtcct	ccgcttctct	tttctcccta	ccacaagact	gacatgactc	300
caagagggac	tgctccttta	gcctgggtcc	ctagaatgaa	gattgatatg	cagaaaaact	360

tcagccagcc	tgcaatggac	ttgtgggggtt	agcaataagc	ttttgttggt	ataagccact	420
gagagccagg	ggctgtatgt	tactgnggca	gaacttaact	gaagctgact	aacactggta	480
ctaacagaat	cattttcaaa	tg				502

<210> 324
 <211> 229
 <212> DNA
 <213> Homo sapiens

<400> 324						
acaaatcata	acgaacagag	tccagtgagt	ccctctgtcg	caacaagttc	aggatcactc	60
aagcagtgga	gacggagttt	caccatgttg	gcaaggctag	tctcaaactc	ctgacttcaa	120
gtgattcgcc	cacctcggcc	tctcaaagtg	ctgggattac	aggcatgagc	caccgtgtcc	180
ggccccacta	cattcttaaa	gaagcaataa	attgaccttg	tttaaatac		229

<210> 325
 <211> 297
 <212> DNA
 <213> Homo sapiens

<400> 325						
gtcctattca	cgttactgg	gagctggagc	ttcaacagat	cttttgggaa	gacacaattc	60
aactcacgac	agggaggaag	aattgcgagt	acttgctact	gctgtgatgc	cgtggagtga	120
gcagaaagat	caatgccaga	tctaaaagga	cttgaggctg	tgagttccat	ctcttgttct	180
ctctcaccct	cttgctttcc	actatggggg	gatacaagaa	tgccctcgac	agatgctagc	240
actttgatac	tggattttcc	accctccaaa	gctgaaaaat	aaattttctt	cctttat	297

<210> 326
 <211> 282
 <212> DNA
 <213> Homo sapiens

<400> 326						
gagcagaaat	gtgaacagct	ggaggccgga	aaagaaagga	cacaagcgga	gaagaaacac	60
cagaggaaaa	ataatccctt	agagggtaaa	gaacaaataa	ttgaataagg	gattaaaaaa	120
cacacaagga	gagatccctg	gtaattaccc	ttgacagcca	gtgtgaaaag	ggcccgggat	180
gggggctttg	tccctccctt	ctccgctcac	acctctcagc	cgcagtaggt	tctttcctgt	240
tgctcctgtc	ttgatttaga	ataagctcct	tttctctaaa	gc		282

<210> 327
 <211> 269
 <212> DNA
 <213> Homo sapiens

<400> 327						
attccccctt	gctgacagt	tgtgcccctg	cgatggagca	gtgtccttgt	tgcagatttg	60
aaccactttc	acctcgtaaa	cagcagctgg	tgagaggaat	ggacttgcac	attcattcgt	120
tttacaaatg	aagaaactga	agcacagaga	aggaaggaat	gattttgtgca	ggaggtggta	180
tttgagatac	tcatcatttt	ctctcattac	ccacatttgt	ttctactcct	gtagtagttt	240
ggttaaaggc	aatagactcc	ttgttccct				269

<210> 328
 <211> 174
 <212> DNA
 <213> Homo sapiens

<400> 328						
ccgcagcgcc	tcccgtcct	ccgacgtgga	ctcgtggctg	taatagcgca	gcaggaaggg	60
ccagacctcc	ccgcggattg	acacatcaat	accgccaaag	aaaatggcct	ggaggaagcg	120
gcaaaaagttg	gtgaggggat	naaatggggc	agctcaaaga	acccccaaat	cccc	174

<210> 329

<211> 405
 <212> DNA
 <213> Homo sapiens

<400> 329
 agaaaatacc tggtaagccc taatggaaac catctgttag aaaaagaagg agacagaatc 60
 gtggagctct gttgacttcc ctctgtcttac cagcaaagag aagaggtgta gtaattctta 120
 aaaagggaaga aagaagagag atcaaagtgg gagaaggaaa aataaaaaga aaaaggacta 180
 agcactttct tctttcctct gagagactgc ggtggctctc ccacctttcc ggagactcgt 240
 cagcacctgc ctggtggaca gcaccacatc tttaaattct aagggttctaa cccctttatt 300
 cccaaattct ggagttcact aacaaagtgg ttttcattct ttaaaaaatg aaatgaaacc 360
 aaagaggggac acacagaggg cttccaaaat aaaatgctag atctt 405

<210> 330
 <211> 434
 <212> DNA
 <213> Homo sapiens

<400> 330
 gacagaagct ttttagtttg acatcactaa tcatcaagga aacacaaatc aaaatcacaa 60
 tgagatatca ccttatacat gtgaggatgg ctattatcaa aaatacaaaa cacaagtgtt 120
 ggcgaggatg tagagaaatt ggaacccgct gttggtggga acgcaaaatg gtacagccac 180
 tatagaaaac aacttccacc ccaagaagtt gtgaatcaca cagtatttct gaaaaggcat 240
 ccttgcccta tgcaaggctg ccaatagcca aaaggaggca tctgagggaa ggaaaaaaga 300
 actgcaccat gcatgcatga agttggcaat ttgcaaaaga aatctgaaac aacattgcag 360
 gcagaaaaag caggaaagag gagatggtna gagacataaa tggggaattg ggggcaacag 420
 gaaattctgg cccc 434

<210> 331
 <211> 167
 <212> DNA
 <213> Homo sapiens

<400> 331
 ggaccataca acataatctt tatagtctcc agcaacaggt atgccttccc ctctacactg 60
 tgcttcttgg gggctaagga agaaactgag actgcatttc atccttcagg agtgagaagt 120
 ttttgctcca gtcataaata cttgctgaat aaatgaatct tctattt 167

<210> 332
 <211> 254
 <212> DNA
 <213> Homo sapiens

<400> 332
 actgagatat ggttgaacat atacttagga cacgtaataa ctatggaact tcatcacaaa 60
 cacagcactg aggacatggt ctgaatacag acaatatgga ggcctcaggc tcagaggatg 120
 gcagagtctt cagatggatg gagggagctg cagtcactga accactgcag ggagagaagt 180
 actcacagac caggaacgct caacttggac tgttatgtga cagagtaata ataaacttct 240
 attttggttt gagt 254

<210> 333
 <211> 422
 <212> DNA
 <213> Homo sapiens

<400> 333
 gatcctgtgc actttattct tccctaccag cctcagaagc cacgtgctga agacagtga 60
 gttctgtctg ggaagaagca tcgatcccta aatggctgca tggagcagag cagagatgtc 120
 tgctcactaa gttggttoga agctgaggag gaaaaaaatt aggtgctagg atgctggaga 180
 gatcctcaga aaccctctca catgaatcat ttaagttagat gaagagctag attgcaataa 240
 tcattgggag gagaagaaga ataaaacatg agattccatt cacatcccag aattaaaggt 300
 aaaatgggta aaagtgaca ttttcaaacc tggaatcaca ctggaacggt atttgcattc 360

tggtaggttaa caataaaaaat ttaactntna aaatanggcc cnggggggggg gggtcatgcc	420
cg	422

<210> 334
 <211> 327
 <212> DNA
 <213> Homo sapiens

<400> 334	
ttgaagccca gtatttnana tccagctgga atcacagggg tttcttggtt ggccccctccc	60
tgaaaccttg gaagaatctg gagtcagcag aagtgtgcat gttgcaaaaa tcacagaatc	120
atgtaaggaa tgaaaggaaa gcccccttct tcaaccttga ctccaacaat cccactgctc	180
aaaggaaccc agataatacg taggaaatac atacctacgt gtttcttaca tatttagaaa	240
tatgtcaaca taagtcatta taaacataag tcattataat taagtcattt gtacttgaga	300
agtcctaatt tacatggtta caatgca	327

<210> 335
 <211> 460
 <212> DNA
 <213> Homo sapiens

<400> 335	
ggattttacc gggtcggcca tatcaggagc acttgaaaat ttgcctacaa atatttgctt	60
gcttttcagt gcagcccttg gaattaaaaa ggaaaattcc tgccctcaga taaagatagg	120
gtcttgctgt gttgcccagg ctggtcttgg actcctggca tcaagcaatt ctccacctt	180
ggcctcccag agtgctgggg ttacaggcat gagccactgt gcttggtcaa ctgtaacatt	240
tgattgcttg gggctgcctg aagcatttgg aggatgagag gagagcattt attttctttt	300
ggagagaaaat ctcaacagta tgggcatagc tggtctcttt tatctctgct tttcatcgtc	360
tttggctaaa ctgccatgga gacctggccc cttctacctt attttagaca ctttaaaaaa	420
cacgggcncn ctttggnan anattttaaa aaacccccac	460

<210> 336
 <211> 305
 <212> DNA
 <213> Homo sapiens

<400> 336	
gagttctgaa accacctcat acttgggaata gaagccatgt gaaaacaaag cccctgcac	60
actcctatct gcctggaatg ctgttggtgt anggtgtaat gtttgaagct gtggctgcc	120
tcttgtagaca aaggggcaact ccgtgttgctc aggatgagga cggcagagga agatgctggg	180
gaaagcctgg atctgcggac atctctgaac cactacgtcc tgggaccagc tatctgggct	240
tcctgttttg tgagataaatt tcacgtattt atgataaaaat tattaataatt tgggtatcct	300
gttat	305

<210> 337
 <211> 174
 <212> DNA
 <213> Homo sapiens

<400> 337	
gctagtcaag tgaagcagtg ggagtggaaa aggagcaaag aaatctgtaa ctgggtgtga	60
ttccatgaac tttttgaaat ccccttgat tggttccctt cctctctctg tcttacttct	120
ctactcccta caagtgtttt ctgggatcac ctccaaataa actacttgca atct	174

<210> 338
 <211> 98
 <212> DNA
 <213> Homo sapiens

<400> 338	
tacgtccaaa ctgagggatg ntaccgggtc ggccatatca gggncacttg naaatttgcc	60
tacaaanatn tgcctgcttt ccagngcagc ccttgga	98

<210> 339
 <211> 291
 <212> DNA
 <213> Homo sapiens

<400> 339
 aaacagaact ccagatttaa aaataaagga ctgtatttcc cagcatccct tgcagctagg 60
 tgtgggcatg caactaagtt caggctaatt tcttcctgaa agcatacaaa gaacctacaa 120
 ctgaggcctc ctgggaatat accaaggcac catccacccc ggggcctttg tacttgctgt 180
 tccctttgcc tggaagactc tttctccaga tatctgcagg gccccacct caattcattc 240
 ctgtattagt ctgttctcac actgctaata aagatatacc agagactggg t 291

<210> 340
 <211> 271
 <212> DNA
 <213> Homo sapiens

<400> 340
 attctcatca ctgaatctcc actgaaaaaa acagggtttg gcacattggt aatttactga 60
 aaagntgang ccaggcgtgg ngntcacac ctgnnattcc ancactttga gaggccanga 120
 tgggaggact gcttgaggcc agaagtttga gagcagcctg gtcaacatag ncagacctca 180
 tctctaaaaa taaaaataaa gtanataaaa cataaaaaaa gaagaaacnn cnaanaaaaa 240
 angggcctcn gnggccnttt aacttgggat t 271

<210> 341
 <211> 285
 <212> DNA
 <213> Homo sapiens

<400> 341
 tggggagatg tctgcgttct nctncttgag gagaanccgg gataaatgga cttgangcca 60
 cgaggagcca gtgagtgtg cctggaacac cgtatgatgc ccagaggagc ccagcagtca 120
 tgctctgaca gcagcatatg gtgcgcaactg gaagaagggg aaaataaggt caggaaggca 180
 gactgggagc ttggattcga ggctgaagaa ctgccatcaa atgtttttga aagggtgtgaa 240
 ataatacaaa ctgtactcca tgatgattaa agctggcata gtgtg 285

<210> 342
 <211> 400
 <212> DNA
 <213> Homo sapiens

<400> 342
 atggcggtttc gctcttattg cccaggctgg agtacaatgg cagcatcttg gctcaccaca 60
 acctctgctt cctgggttcg agtgattctc ctgcctcagc ctcccaagta gctgggatta 120
 caggcatgtg ccaccaagcc cagctaattt ttgtattttt agtagagatg gggtttctcc 180
 atgttggtca ggctggctc caactctcga cctcagggtga tctgcctgcc tcggcttccc 240
 aaagtgtggt gattacagat gtgagccact gcacctggcc aaaagtgaag tcttaattcc 300
 taattacttt gtctcctctt gttattact tcttttcaact tcttgaattt actgnactaa 360
 ctgcaccaa agaaaaattt cttgattata taattcatgc 400

<210> 343
 <211> 459
 <212> DNA
 <213> Homo sapiens

<400> 343
 atccattatt tgggcaggat tctgtangga aaactcatca ccaacttnata tancatcagc 60
 catgcggctc anctganggc tgnatgatcc acttntaaga tgactcactg ctggctggct 120
 gttaatgctt ggntgagcc ctggggcctt ggttngtctc cacattgncc tctccattan 180
 gcctggactt cctcacanaa tgggtggacya gnetctaagg gtaaacatcg caagagagaa 240
 aaccanacaa gagagcaaaa cttgcctttt gtgacctagc ctcagaaatc acatagtgtc 300
 tattaattga agcaagtccc aaagtccac ctgggttcaa ggggaggaga tactgactac 360

actgtccttg atgggagggg ggtaaagatt ctggaagaaa aatgggacca naaatgntgn	420
tgcacnnttt tggggaaagg gaatntaacc caaccgggt	459

<210> 344
 <211> 423
 <212> DNA
 <213> Homo sapiens

<400> 344	
attcattctc atagaagggc atcagaggaa gataaagaag gatcctcaat gtcagacatc	60
tgagcccaag ctaagccatc ataatccctg tgacgtgcac atatacatgc cccactccaa	120
ctaatacaatc gaccttgtga cattcctccc ctggacaatg aatctcatga tctcccaacc	180
ctgcaccttg tgacccctcc cctgcccaca agagataaacc acctttaagt gtaattttcc	240
actacctacc caaatcctat aaagctgccc caccctatc tccctttgct gactctttgt	300
ggactcagcc cacttgcacc caagtgaat aaacaagcct tgttgctccc aaaaaaaaaa	360
aggccagngn ggccaattna gcttggactt aaccaggtg aacttgntna aaaggggggg	420
act	423

<210> 345
 <211> 238
 <212> DNA
 <213> Homo sapiens

<400> 345	
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gacatgggat gctgaagcga tacagaatgc cacctggaag ttcgttgaaa ccattgccga	120
ctaggtgtgg tggcttcgtg cctgtaatcc cagtactttg ggaggctgaa gcaggaggat	180
cactggagac caggagttca agaccagccc gggcaacata gtaagaccct gtctctac	238

<210> 346
 <211> 151
 <212> DNA
 <213> Homo sapiens

<400> 346	
aaaaaggtaa tatttaagcc tgaagtttaa actttctttg agatccactc tgaagattta	60
ttaatttctt ggggtttgtg ctgcattctg cccctggctc ccaccatgta tccatgaggc	120
atgcatgtta acaaacttct gtttgatttt c	151

<210> 347
 <211> 423
 <212> DNA
 <213> Homo sapiens

<400> 347	
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cagcacaatg ggatacctca gnatcccgcc aggatggctg taactcaaac gacagcaaca	120
ccaatgcagt agacatgagg tttcatcacg ttggccaggc tggctcgaac ctctgacct	180
caagtcattc gcctgcctcg gcctcccaaa gtgctggaat tacaggcgtg agccaccgca	240
cccggcctgt ttctaccatt ctggaaaaca gtttggcact atactaaatg cctcagcagt	300
ttcacttttg gaaccttctt tgccctcacc cctgggaaat aacatttgcc aaaactcatt	360
gaactgtact cttaaaatgn ggacatttta ttatatgtna actataattc aataaaattg	420
gtt	423

<210> 348
 <211> 456
 <212> DNA
 <213> Homo sapiens

<400> 348	
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agtttatata caaattaagt aaaagactaa ttttggtttt gaaaaactcg ttctctaaac	120

ttttacagga	agtttaaata	aattacatca	tgaacaaaac	tgcagtatgc	cagttcctat	180
cctcatgacc	tcacgattct	gcctgagctc	cacatcaatg	aaaggaaaat	cggataatga	240
agcacttagt	ctaatatctc	aatagcaacc	accaantagg	attacttttt	agaaaagaaa	300
aaaaaaccta	accttatatg	taaagtgtatc	tagtgngcaa	atgacataat	gcttatatgn	360
atggaaatct	atctagnngg	ccaatgactt	aatggccngg	gnggggaaac	ngngggcgag	420
aagcccccac	ttccnccctc	cnggtttttg	aaaaac			456

<210> 349
 <211> 249
 <212> DNA
 <213> Homo sapiens

<400> 349						
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acatcagaga	gaactcaacg	gcctgacctg	gagaccagga	ggatgacatt	ctcattaggg	120
aagagatgct	ggaccttctg	cagtaatgag	aaatgaaagt	caccactctg	ctctaaaagc	180
aggggctatt	tacccttgac	ctgacacact	tctcaaagct	ctcacaataa	aggcaccag	240
catccactt						249

<210> 350
 <211> 205
 <212> DNA
 <213> Homo sapiens

<400> 350						
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tcattttgca	taaagggaaa	tagggcccaga	gaaagaaaag	ggactgtccc	aagatcgcac	120
agcaaccatt	ttgaccttca	acaagtactc	cctgactcca	agcaataagg	gtgaaaaaat	180
aaggaataaa	ttgtataaag	cacgt				205

<210> 351
 <211> 458
 <212> DNA
 <213> Homo sapiens

<400> 351						
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tntgctatgg	cctctgggnan	ccatganctg	ccatgaaaaa	ngncaaacta	ctctgctgga	120
gacacccacc	tggagaagcc	ntgggnattcc	atgganaggc	agacggaccc	agctgagctc	180
agtgttccag	ccatccccac	gaaagcacca	ggaacctgag	tgaaccatc	tcgatcctcc	240
agcattagcac	aatcacccngc	tgaagatnac	tgagtgactc	tagnccgnag	ctccatggat	300
cactgaagga	tcaccctnt	gaaccctgcn	caaatttctg	actcacaaaa	ctgtnganca	360
tacaatgggt	ggtgggttagg	gggcagtttg	gtatnctntt	ncaattaatt	tgccggaaga	420
gnccccaann	aaaaaaataa	ggggggcccg	gcaagggc			458

<210> 352
 <211> 285
 <212> DNA
 <213> Homo sapiens

<400> 352						
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tggtccttc	agggcctgac	aggggtggtga	accccacgga	aacatcaggg	cagcctgggc	120
aagacaaagg	cagcttcact	ccacaactgt	ccagaatcaa	ggatccgggc	cgggcgtggt	180
ggctcacgcc	tgtaatccca	gcactttgga	aggccgaggg	aggcagatca	cgagatcggg	240
acaccgagac	tatcctggct	aacacggtga	aaccccgctc	ctact		285

<210> 353
 <211> 448
 <212> DNA
 <213> Homo sapiens

<400> 353
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 gtgcagcaat tgaaaaagga gtatgaactg gaaattacat cagactccca aagcccaaaa 120
 gatgatgctg cgaatccgga ataaagaaat gcacacgcaa gggctgggcg cgggtggctca 180
 cgctgttaat ccagcactt tgggaggcgg aggcgggagg atcaagacgt caggagattg 240
 agaccatcct ggctaactt gtggaaaccc tgcctctact aaaaaataca aaaaattaag 300
 ccagacgtgg tggcaggcac ctgtagtccc tgctactcag ggagtcttga gggcagggag 360
 aaatggcgctg gaaccccnngg gagggcnnga gcttgcagtg agccccgaaat cgtggccact 420
 ggtactccaa gccttggggc caacaaga 448

<210> 354
 <211> 360
 <212> DNA
 <213> Homo sapiens

<400> 354
 ctacaacagg gtgcctggcn cnaggagata ctcantaaaa ctctcatctg ctgtgtcatt 60
 aaggggaaca cttaattggct cacgcctgta atcccagcac tttgggaggg cgaggcggan 120
 ggatcacctg agcccaggag ttggagacca ncctgggcaa canattgaga ccctgtctca 180
 acangagaag aagaagaaga aaaaggccag gcgccgtggc taatgtctgt aatcccagca 240
 ctttgggagg ccaagaaggg agaactgctt gagggcagga gttcgagacc agcctgggtca 300
 acatagcgag acaccccccc catctcaaaa ataaataaat caaaataaaa aataaagagg 360

<210> 355
 <211> 387
 <212> DNA
 <213> Homo sapiens

<400> 355
 ttcttcgtng actctggaat ggagctggaa gctgtcatcc tcagcacact aacgcaggaa 60
 cagaaaacca agcactgcat gttcccactt ataagtgaga gctgaacgag cagaacacat 120
 ggacatatga aggggaacaa cacactctgg ggcctgtgag gtgcagggag agcatcaaga 180
 agaacagcta atgggtgctg ggcttaatac ctgggtgatg ggttgatctg tgcggcaaac 240
 caccatggca cacatattacc tatgtaacaa accttgacat cctgcacatg taccgccgaa 300
 cttaaaaaata aaagttgaca aaaagaaaac ataaaaaaag ggccaggggg gccaatnct 360
 ttgnacttaa cctggctgaa cttgttc 387

<210> 356
 <211> 418
 <212> DNA
 <213> Homo sapiens

<400> 356
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 tgtggagctc cagagaccan gaangataac nctcattgnc atagctactt gtcagcgcat 120
 aagaaagtga ncacacagggt ggtaccaang accttccttt tctgggtcca agataatggc 180
 nggcacnaa ggnctattcc tctaccctac tggnttatca ctgggctgaa gaancccaag 240
 tagtgaatta cccactagga ccctggaaga ggaagtacaa cggttatcct cagttttccc 300
 tggaaatnngg aatgagctcc tgggttactg aaagtctact ttgggtgcctt gaatttaacc 360
 caatcccata tgtgataatt attttagcat atttgataat aaaagaattt aagaaggg 418

<210> 357
 <211> 363
 <212> DNA
 <213> Homo sapiens

<400> 357
 gtcaagctgg tctctgggtg ccatggggac acttcaggag aaaccgatta acattgagat 60
 gtgtggaac aggatcaata attttcagta actgaggaag attaccagaa gccaaaggcg 120
 cttttaacag agactgtgca gctctgagcc caggactgtt aagcacttgg caggcaatgg 180
 agaaagtcta attgtggctg acgatgagtc attttacact attgtcacac ctcttttatc 240
 cacattccat tttaggaaca gtataacttt ccagccaga aattgtctaa tttaaaccct 300

gactcttacc tgtgtgaatc aaaatgactc anaaagtgc aataaaataa ccctgaggag	360
tcc	363

<210> 358
 <211> 332
 <212> DNA
 <213> Homo sapiens

<400> 358	
gttcaggag ttgcagaaat gccaccagga tctgcagaac acattgcaag acaaggagag	60
ctggaggagac tcagaccctg acctcatcca aaagtgaata accaatcctg ccaaagtga	120
tgtattttct ctccccaag gcagacttga gacccccagc ttcagggtgg cttctgctg	180
acttccagag ctccagccag tgccttttgt ctgaaacctc catgtccagg acccttgggc	240
ggagaagaat ctgctggaca ctgcttgggg ctggaccctg agagcgctca catttgacac	300
cccagaaagc aaataaaaca gttgaaatat gt	332

<210> 359
 <211> 394
 <212> DNA
 <213> Homo sapiens

<400> 359	
tcacagcctg ggctcatcac gaaaggcagc cagcacttca acggactcac tgcctctacc	60
tttctccttg cttggatgaa gaatctgaat ctagaagccc accaaattca tctaacagta	120
gtgcaagcag atattgcttt ggaaaatatc tcagcagaga acactcctgg gatgtatttc	180
atcagtctga tacttccaac tctgccaggg aacaagctca ccaaaggctt ctcatcaaac	240
agctctgccc taaacacctt gggggattcc ccaacagtgt cttgcgggcc taatgacact	300
catgttcctt ctcatgctta cctttctttg cctgacgtga gtgcaaaaac ctatcttaag	360
caagataatt gtaaaaatac caaaattaaa tgat	394

<210> 360
 <211> 373
 <212> DNA
 <213> Homo sapiens

<400> 360	
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acgacaggga ctttaagag gcaatgaagg taaaatgagg tcatcaggat ggactccgat	120
ataaccggtg tccttacaag aagagaagac aggacacgca cacaaagcaa gggtcagcca	180
tgtgaggaca gtgagaaggc ggccgtcgac acgccaagga gagaggcctg ggaagaaacc	240
aaccttacac cttgacatca gacttctggt ctccaaaact gtaggaaaat aaatttctct	300
tgtttaagtc aaaaaaaaag gccagcgagg ccaattcagc ttggacttan ccangctgaa	360
cttgctcaaa agg	373

<210> 361
 <211> 431
 <212> DNA
 <213> Homo sapiens

<400> 361	
gaggggcaca cttttcaggc ctagccctcg gcctggatga aggtgtggct gagcatccct	60
gttcttgga cttggcatca gcatcactga catcggaagc acacggacct cctcccactt	120
cgacaagcat caaaccatc tcttctcctt gctctggcca ggtcagactg gagccaactg	180
tgctgcagct cctgtggaag ccttggcagg gaggtgaggg ggagcaccag ttacaagcaa	240
aggctccgag tgcaaagagc cttcgcttat gattcaggaa tctctgggca agttacctaa	300
ggtatctgag ccagcagttc gtcactgtgt gaatggggag aatggcaaca cttctcataa	360
gggttgaagt aagggaataa aatgatataa tgnngnattaa acccttaaaa aaagggtctg	420
ctggcatata a	431

<210> 362
 <211> 253
 <212> DNA

09438674-102799

<213> Homo sapiens

<400> 362

gtattttttca	gaccctgcat	tctgttggat	ctgctgatgc	caccagact	gataaactgg	60
ttcatctgac	cttgtggccc	cccgacccag	gaactgaact	cagcacaaga	agacaggctt	120
caactccctg	tgatttcac	cacgaccta	ccaatcagta	ctctccactc	cctagcccca	180
ctgctcccca	aattatcctt	taaatttttg	gggaggctgc	tttgaataat	gataaactcc	240
tgctcttctg	ctt					253

<210> 363

<211> 403

<212> DNA

<213> Homo sapiens

<400> 363

atcctgcctc	ccacagtcac	cctgctccca	agtgcacact	ctgtctgacc	ctgcatgggtg	60
tgcggtgccc	tcctgcctca	gcctcccggg	tagctgggac	tgcgggcctg	cgccaccaca	120
cccggcta	tttttctatt	tttttttttt	tttttggggg	naaanggggt	ttaacnattt	180
nggcaggn	ggtnnnaac	tcnnaatntg	ggggccnacc	cgcntggg	tcnaggggg	240
ntnaaattgn	aggggggggc	naaccnccct	ggccccaan	aaattttttt	ttgggttaaaa	300
ntttttgggn	nnggattgcc	ccctaaaatg	ttccccaatt	gggncttatt	nttttaaaagg	360
aaagncccaa	agggnacttt	atttttagnn	taggaaaaaa	aac		403

<210> 364

<211> 132

<212> DNA

<213> Homo sapiens

<400> 364

gcattccaggt	atacacacaa	gctgcatcgt	gtcactgcaa	gcggctccca	gagttgttcc	60
tgttcatcca	ggaagaaaga	aaatcccgc	aaagattgag	agagatcaat	aatgtattt	120
ccaaagaacc	tg					132

<210> 365

<211> 435

<212> DNA

<213> Homo sapiens

<400> 365

tagtaaaang	gggcctgctt	ccccgtcacc	ttccgccaca	atcgtttaagt	ttcctggggc	60
ctccccagaa	gctgctatgc	ttcctataca	gtctgcagaa	ctgatgacat	ggcatgaagg	120
ccctcaacag	atggcagcac	ctttaataat	gaacttccca	gcatccagaa	ctatgagaaa	180
tcaatttatt	ttcttataaa	ctacacaatc	tgtggtattg	ttatggcagc	acaaaatcag	240
actaggacag	aagaattctc	caacgaaccc	attcaggact	ggtgctttct	gttttgaaaa	300
gttcatattt	ctttattttt	gnataaataa	taccattttc	aagttataat	gntcattata	360
atgncatata	cactagaaaa	tttaaaaaca	ctgccatact	gagggtttta	aagaaaacaa	420
catggactag	cattt					435

<210> 366

<211> 330

<212> DNA

<213> Homo sapiens

<400> 366

gaagaatata	naggagccct	taaaacactt	ngatnaacna	tacnagggtta	tgcganagna	60
ccctcatatt	ttanncaaga	ttgcaaagaa	aattcatttc	agttctacat	ttgggtgccaa	120
gcgttggttag	ttgcagataa	ataagataga	atccagctct	taagaaattc	aatctagtgg	180
aaaaaaacat	aaatatttgc	agttaatttt	ttaggcgtca	ggcactgtgc	taagtactct	240
cattgggtgac	cttgattttt	accctcttaa	tctccatgtg	ctcccccttc	ccaaatacac	300
tccaagtaaa	tataaaatct	tagtgaaaaac				330

<210> 367

<211> 351
 <212> DNA
 <213> Homo sapiens

<400> 367
 gcttaatttt tcctgatcat gagagaagaa cacagatgta gctgaactaa ggagcaaaaa 60
 cccggcatca atacctgcta cagcacagat gcagcatgaa aaattatgct aagtgaata 120
 agccagtccc agcagacaac ttgcttttta tttcagaggc ttataggcaa atctatacaa 180
 agaaggtggg tggttcccta gggctgaggg aggaagggaa aactagttaa gatggctaaa 240
 tgatgtgggg gtttgttttt agggatgatga aaatgttcta aaattaattg taatgatgac 300
 ggcataactc tcgaaaatac taaagttaat gaattctata ctttaaatga g 351

<210> 368
 <211> 271
 <212> DNA
 <213> Homo sapiens

<400> 368
 ctccagctgc atctgatgtc actgctatgg cagtgaagaa tgaaaaccaa aggacaactg 60
 gctacttaag gaattaagcg gactaaaatg aaaaccattc acagaagcag ttccagtact 120
 ctggctgaga ctctgttttc ctacatacag cccacattct gaatatactc aaatctacgc 180
 aatttcaaac ttagaaaact ttaactgctg ccccaactgaa gccattttca agctggaatc 240
 atgtataata aactactcca tctatttcac c 271

<210> 369
 <211> 303
 <212> DNA
 <213> Homo sapiens

<400> 369
 ctccacctgc cgagttcacg ccattctcct gcttcagccc ctcgagtagc tgggactaca 60
 ggcgcccgcg accacacccg gctaattttt ttgtattttt agtagagatg gggtttcacc 120
 atgttagccg ggatgggtctc gatctcctga cctcgtgatc tgcctgcctc ggcctcccaa 180
 agtgctggga ttacaggcgt gagccaccac gcccgggcgc tcttttctta aatatctggt 240
 ggaggcctca aaatcaaaat gtctaaaaca gaactcatca tcaataaagc cattcgtcca 300
 ttt 303

<210> 370
 <211> 185
 <212> DNA
 <213> Homo sapiens

<400> 370
 tttgtattca agacagaaaag gaacacctac ccaggagctc aatcacattg catgcacaga 60
 caccgacaac cacacagacg tgtgaacaca tccccccaac gtgagcaacc gcagcataat 120
 gggactcatc ccatccaaat acccatttca tctaaagtgt aaaaataata aaaagaactt 180
 cttgg 185

<210> 371
 <211> 294
 <212> DNA
 <213> Homo sapiens

<400> 371
 gcaaaacatt ctctgcaatg tgggggtgagt ggcaatgaga acacctcaga agacactggg 60
 tagctttttc aaactcttcc ctccacattg agattcagat ctgagaagta ctgggggaag 120
 agggttgaga cttgtggatt ataaatcaaa aaaacctgag gttctgctgc agcccttcct 180
 accaccacgc cgcacctccc taccttgaga atcgctttct gtctgttttg atgagaacac 240
 tactttcgcc ccaaataatc catcatactg ctattaaaag tcaagttcca aacc 294

<210> 372
 <211> 512

<212> DNA
<213> Homo sapiens

<400> 372
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 gagagacgga gtctcattct gtcgcccagg ctggagtcca gtggcgtgat cctggctcgc 120
 tgcaagctcc gcctcccggg ttcacgccat tctcctgctt cagcctcccg agtagatggg 180
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 gtttcaccgt gttggccagg atgggtctga tctcctgacc ttcttgtgat ctgcccgcct 300
 cggcctncca aggtgctggg attacaggca tgagccaccg cggccagcca tatttttaaa 360
 ttatctaaag aatgtaatta gattgtttat aatttaaagg atgaatgtt gaggagatga 420
 atacccatt ctccatgatg ngcttatttc ataantcatg cctgtatcaa aacatctcat 480
 gtaccccata aatatataca caaaaacttt at 512

<210> 373
<211> 231
<212> DNA
<213> Homo sapiens

<400> 373
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 cngcctnmgc ctccaagta cncatagacta naggnacang ncgctgntna ntgatgcact 120
 tttaatccca atttttagga gctctgtgna atgttntcaa gcattttcca ttttttaatg 180
 atttaagtat ttgagcactt tgagctaatt aaatttgaaa ttgtttaaaa t 231

<210> 374
<211> 262
<212> DNA
<213> Homo sapiens

<400> 374
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 actgccttcc aaaacatccc tgtgcctcat ccctttctac acattccata taaagagatt 120
 gtttcatttt ccacctggca acgcttaaat tgttttattt ttcttcatta aaaccaccac 180
 gcctcttcat tcaaaaaaaa aaaggncagn gnggccaaat cagctnggac ttaaccaggc 240
 ngaacttgnt caaaaaggggg gg 262

<210> 375
<211> 638
<212> DNA
<213> Homo sapiens

<400> 375
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 gggatttcga ataaagcttt tgaatgaagc ccgccacaat ggggaatcgg gccatttga 120
 aacaaagaat gggaattggc acgccaaggg ttcttcccgg ccgggctttg ggggtgggaag 180
 aaggcttatt ccggcttatt gactgggggc acaacaagac aaatcgggct tgctcttgaa 240
 tgcccgcgctg tgggtccggg cttgtcaaaag ccgcaagggg ggccgccccg gttctttttt 300
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 gcagccgccc ggctatccgt ggggcttggg ccaccgnac ggggccgttt cctttgcgca 420
 agcttgtggc ctcgacgttt gtccacttgg aagccgggga aaaggggact tggcttgctt 480
 attttggggc cgaaagtngc cccggggcca agggatcttc cttgggcatt ttnaaccttt 540
 gggtcttngc cgagaaaaag gaatnccat tatnggntt gaaggccaaa tgggcggggg 600
 gggttgaana accccttttg aancggggtt tacccttg 638

<210> 376
<211> 432
<212> DNA
<213> Homo sapiens

<400> 376
 gaggaagaga agggcagggg gcaagagtaa aggctttgga gctcagcaag actgggttga 60

atctcagcct	cattgtttac	ttgatgtgta	aaagcagggc	ctcactctgt	cacccaggct	120
ggagtgaagt	ggtatgatca	cggtccctg	taaccttgaa	ctgcttgggc	tcaagcagtc	180
ctcctgcctc	agcctcccaa	gtagctagga	ccacagcaac	tgaagcctcc	tgccaacagc	240
catgtaagta	agccatcttg	ggagcaaaac	tatctggttc	tcttcagacc	ttcagatgac	300
tgcagcctca	gctgacatct	taactgcaac	ctcatgagag	accctgagag	ccaaatctac	360
ctttctgagc	aactatcaaa	cttctgaccc	acggaaactg	tgagataata	aatatttttt	420
gtttaaacca	tg					432

<210> 377
 <211> 410
 <212> DNA
 <213> Homo sapiens

<400> 377						
aatgcggagt	gccccgaaa	agtgcctccc	aaaatgtctc	aggtcagagc	tgcaacctgc	60
gcaacaacgg	ctaagatgag	gaaaaccaag	acacagaaaag	aaaaccattt	tgcataactg	120
acgaacctgg	atgagttcat	caccaaactc	caagaaccct	ccgctagggtc	tctgcctagt	180
gtccatgaac	cagcagcacc	ctcattacct	gggagctgaa	cagaaatgca	gaatcctgca	240
cccaccccag	acctactcaa	tcacactccg	tttcaacaag	atctccagggt	catacgtacg	300
tacagtacag	tttgggaagc	attgctctag	gacagaaaaga	gtttctcaaa	attattagat	360
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<210> 378
 <211> 195
 <212> DNA
 <213> Homo sapiens

<400> 378						
tctggggagc	tcttggttag	ctccngctga	gatactatna	nactctgtga	agccccggatt	60
anaaaaaaga	tncaaaatac	attccgagga	gcanatcttt	ctgtggtaac	actgcattcc	120
anatgtgcga	aaaagacagg	gaaanacatg	aactgcanta	cattacggct	aaagggagnn	180
ngcttattaa	cttcc					195

<210> 379
 <211> 241
 <212> DNA
 <213> Homo sapiens

<400> 379						
ggagaaggte	accgtgatgt	gatggaaagg	cagaaatcaa	tggtggctgg	ctcctcagtg	60
atatgagtca	atccatcaga	cagactgggtg	gcagncaccc	agccttcaca	gctaccaccc	120
ccatgctggc	aaatgtcaca	tttggaaattc	atttgcatag	ctgggtagca	ctccctgcgg	180
agttacattg	aacaattttg	cagctgtgac	agcttgaaat	agaaaaagcta	atgcaactat	240
c						241

<210> 380
 <211> 357
 <212> DNA
 <213> Homo sapiens

<400> 380						
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gcaaagttac	ttgtggataa	acaaagcatt	angaaatgga	ctctcatntc	tctcaaaaag	120
tatcaaagaa	gtgaaattca	tcagaccact	gtgtcnagac	aatgagacgc	cnnatgccag	180
attccttant	tgncatgatt	gcttccttan	ccctccctag	ttcctgtttt	cctgctcata	240
agttacattt	cttccttgct	atataatccc	ctaatttcgg	ctggttgagg	agatggnatc	300
caaactgatn	tcccatatcc	ttagctgtag	catgcaatta	aagccttctt	ccttggc	357

<210> 381
 <211> 329
 <212> DNA
 <213> Homo sapiens

<400> 381
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 gcaaatatte agctatggca ttaaagatcc tttcaagaac ccttttgaat ggcttctcta 120
 ggtgacacag caaatggatt cctaagtatg catccattct cccgggtaaa ccacgagtct 180
 caaaaagtga gcagcaggct ggacccgggt gcacacgcat ggaatcccag cgctttggga 240
 ggccggggca ggaagttgct tgaggccagg agtgcaaaac caacatggcg agactctgtc 300
 tgtataagaa ataaaataaa ttatccagg 329

<210> 382
 <211> 443
 <212> DNA
 <213> Homo sapiens

<400> 382
 atgtggacaa cgaacaaaga caatagagca gaagtgttgg caacacttca gtatgagcag 60
 actggtggac agtgagagat tacagaagaa cacagctctg ggccagcagt gctgctgtcg 120
 aggtgatccc agcaggcagt gccacccacc aggaatcata aactgcacaa ggccagaggt 180
 gagtccctct gtaaatacat agccctagct ccaagcattt aattgtcaca aaaacaacaa 240
 aaaatactcc tattaacagt gcaattttct tttccaaggt ctacatcgag agaaagaata 300
 ttaggatgct aatattgcat tgggtcattg gagcttaatg tttagaaata ataaactaaa 360
 ctgttttgtg gtctgaccaa aaaaaaaaaa gccagnngg ccaattcagn ttggacttaa 420
 ccaggctgaa cttgcttaaa agg 443

<210> 383
 <211> 460
 <212> DNA
 <213> Homo sapiens

<400> 383
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 gctgcacat gtcaactggg acccagggtt catccatgtt tctgctctgt cattatgtca 120
 tactccaagg gagtcgccag atgactgctg cagctgaggc ttttctttca cagcatctaa 180
 cagaggctgg ggagaggctc catgaagcac gtggtttcct aataccagaa gaaaattcaa 240
 gccttttaac atggcagtc acagtggtag gaggcggaag gagactttgg gtattcaaaa 300
 atgggttatc accttctact tctttggctg catgatactc agagatacca ttcatgtcta 360
 tatctaaatg acactcattt ttttcctttc taaaatggag cacctggctc caaagttctt 420
 ggacatctgg gtgatgcagt gggttcttca tttatccctt 460

<210> 384
 <211> 426
 <212> DNA
 <213> Homo sapiens

<400> 384
 ttggttgat ccatggatgt gaaacctggg gataggaaag gcatactgta tccccctgcct 60
 tgtagcagct cacaatataa tggggaatgg ttccctgcca gcgaacatgc tgtgtttcgt 120
 tcaatcattc aaaacatttg agtgtccact gtgtgccaga cgtgctggtc cctctgctgt 180
 gcacatcatc ctccctgggtg tgatgtcctc tcgaggctca gttcagatgc tacttctctg 240
 cttggctttt ccagactgca tgatacccag gctgcctggc tgggtcttcc catgtattcc 300
 acccctgacc tgtactggcc ctgttgccaa ctatttatca aattatgtga ttaatatctg 360
 ggtattttct tacactggac ctactcata agggcaggag ctctgtcccg ttcacacacg 420
 atcctt 426

<210> 385
 <211> 250
 <212> DNA
 <213> Homo sapiens

<400> 385
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 aggcagcaca ggaggctgat gccatccagg aggagatgaa tgagaagatc gagcggctca 120
 aggccgagct ggtggtgttt aaggggctta tgagtgaccc catgacagac ctggacacaa 180

aaaaaaaaag gncnnngngg ncaattnagc ttggacttaa ccaggntgaa cttnttcaaa 240
 agggggggaa 250

 <210> 386
 <211> 165
 <212> DNA
 <213> Homo sapiens

 <400> 386
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 gntcagaann ccccaggagt aaaatgcagc ctgtattacc cttcctggag tgtatcctac 120
 ttggagtctt cttgttctgg gaggcaataa atttctttgt tattt 165

 <210> 387
 <211> 397
 <212> DNA
 <213> Homo sapiens

 <400> 387
 ctctgcggtt tctgcagagc tcctgcatta nntcaganct gcnatggnat ctgginctgan 60
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 taattccttt aggggaagcaa tgaagggttaa atgaggtcat aggtgggagc ttaatccaat 180
 gggactgggg tccctacaag aagaggaaga caccagagct ctctgtctcc acacacagag 240
 aaaagaggct gtatgaggac acaagagaag gtaatagctg tctacaaacc aagaagagaa 300
 gcctctccag aaaatgaacc ctgctggaac ttggtcttgg actttccagc ctccanaact 360
 gggagaaaat aaagttcaaa ataaagttct gttgtgt 397

 <210> 388
 <211> 232
 <212> DNA
 <213> Homo sapiens

 <400> 388
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 ccagaattcc gtctagtttg atcactgatt tgctgggtga cctgggtgat ttcacttcgc 120
 ctcagtctct ttatctgtaa tatgagaatg cgcagatttg cctcctaagt gtgatgtgag 180
 aattaggtga gagttggcag gcactaaana aaaaagcatg cattaatcct tt 232

 <210> 389
 <211> 167
 <212> DNA
 <213> Homo sapiens

 <400> 389
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 aaggcagtgc caggactcag acttctgact tgaaatcaga gtttcttttc atcatcacat 120
 ccttcctttc taatctgttg ttaataaaaac tcttggtttt ctaggtc 167

 <210> 390
 <211> 187
 <212> DNA
 <213> Homo sapiens

 <400> 390
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 cagttagggag aaaacagaga aggtgaaagg aagatgggca aaaagaagag tgtaagaga 120
 gaaagaagaa gtatttgaga tcctgccact gcactccagt ctgggcaaca gaacaagatg 180
 ctgccag 187

 <210> 391
 <211> 282
 <212> DNA

<213> Homo sapiens

<400> 391

gtttaaggag	gcacaaatcc	aggtgttccc	acattaccaa	attactactc	tgtagtttga	60
aaggaatgac	aatgacatcc	tgtttctggg	catggcta	ttagtataca	ctgcacctgt	120
aaaactccag	gccatcaaca	tttcaggaag	gctatgta	caaagtggg	acacttacta	180
ctgagaatta	ttgggtgactt	ccagagtaca	gcacaagccc	tctctccacc	tgactttcaa	240
ttacaacaga	gggtcagaag	agtccaataa	aggcagaacc	tg		282

<210> 392

<211> 146

<212> DNA

<213> Homo sapiens

<400> 392

caacatggag	acaatgtttt	cctgcattct	tcattccaga	agctgatgga	ggaaaggccc	60
tatgagctgt	gggctggctc	tataggcccc	actgtacttt	agggaattcc	agtagcaaaag	120
gaataaaatc	atttttagtca	ctatgc				146

<210> 393

<211> 190

<212> DNA

<213> Homo sapiens

<400> 393

tgtcaagggtc	aaggtgttga	acgtctttcg	agtcacgagt	aaccagttat	attggctatt	60
tcagaatgct	ttacagccaa	aaagtccttg	aacgaaggaa	gaagtccact	aagtctcatc	120
agcaagggtc	cagctcctct	tcctctgcat	gttttgaaca	ataaaaatga	ctaccacttt	180
ctgagaacct						190

<210> 394

<211> 303

<212> DNA

<213> Homo sapiens

<400> 394

atggaaatca	gcttccagt	tgaaccactc	tatggacaga	ctcaaagtga	aaagaactga	60
tggagaccct	cagctcacga	ctggcaagga	attgacatcc	tcagttcaaa	aacctgtgaa	120
gagctggatc	ctgccaacaa	ccacgtgact	gagcttgga	gaaaatcctt	cctcaaata	180
accttaagat	acctgaaacc	ccagtggga	ccttgattgc	ttaattgtaa	gagactatga	240
gcaggaatat	ccaacctaag	tgaaaacaca	ggaactgtaa	gataataaat	gtgtgtttta	300
agt						303

<210> 395

<211> 117

<212> DNA

<213> Homo sapiens

<400> 395

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tcaaaaaaat	ggaccaagt	ttgagtcaat	taacttttct	taaattctct	tgaccag	117

<210> 396

<211> 244

<212> DNA

<213> Homo sapiens

<400> 396

gcagagaaca	catcatcccc	ctggaacgtg	agtcatttgt	gaaatgcttg	ttttaaattc	60
aaacttcttc	acaacctgac	gagtgtgtgg	gagacccaag	gaagctgaca	tacaagggga	120
gatttatatt	tctgccagaa	ggaaccatca	acacaaaagg	caatggtaac	cctaaaaaat	180
gaaatgtgct	aacccttttt	attgtcaagc	aaataaaaaa	attattcttc	aaaggaggag	240

aaac

244

<210> 397
<211> 168
<212> DNA
<213> Homo sapiens

<400> 397
taaaanttgaa agtagctgat atgggaccac agaattattgg ccaatcagtg ttttacataa 60
tgtctgtgga gtggccatgt gctctagaag agtgagacaa ccttggcata accttcttta 120
agagccaatc acataacact gtgaatattt ataaaatttt agaccatt 168

<210> 398
<211> 477
<212> DNA
<213> Homo sapiens

<400> 398
gcgtctgggg agctcctgag attntgngga gctnctgcan naaggctnan tgnaanatnt 60
ntgctgnant attngnnatc nacantgacc atctccaggt ttctacattg gaatccaact 120
tcacaagaat ncacttgacc cactatactg gaggaactt ccctgcatgg cttagcctggg 180
atgctgtggg tcacaagccc ctccctagaa gttctcctga gtatctaact gcagtcctctc 240
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aagtccttct gagtatccct gcaatgtang atgaagcaat ccactaccca ctctgctact 360
gctctgctca gaaccagcac cctccctcac cccactccc atccatgcca agaattgctgc 420
acttcttccc cgtgagccag ggtcagcccg aggagagggg cacaagcaca gggcctc 477

<210> 399
<211> 261
<212> DNA
<213> Homo sapiens

<400> 399
atgaaatctc agtacagacg cacttttttg ttaaatacac tancaaggna gttagtgtat 60
tttgcnaga aaatgcnana tgnttggaat atcttcaaca ttctcanatg tgggctctaa 120
atccaacaat aattatcctt ataagagaca gaagaggcac nnatacnaaa gagaaggcca 180
cgtgaaggga gtgtggccct gctgacatct tgatttcgga ctttanccct tnggaactta 240
nataaacctc tgtaagctac c 261

<210> 400
<211> 139
<212> DNA
<213> Homo sapiens

<400> 400
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cttgatgttc tactcttgga agcttttcac tggtagcacc atgaaactga agaataaata 120
caagttagtg catttattt 139

<210> 401
<211> 415
<212> DNA
<213> Homo sapiens

<400> 401
actcatttgt tctagattca gatcattcaa caaacatgg catgatttcc acagtctctg 60
acattctgat tgcattgctt gagaaaattc tcagtctggg aatctcctta aaatgcagca 120
cagatgatgg ctgaatagga acagctccgg tctgcagctc ccagcgagat caacgcagaa 180
ggcgggtgat ttctgcattt ccaactgaga acaacgaaga aaaaatttct tttaaagaaa 240
ggccaaagaa ttattataga tcttttcttt cgacattcct aaacaagaac aggcctagat 300
gggtgcattt tcaattcttg tcctaactgg tcagtgaacca aaacctctaa aaattcacia 360
agaagctcat gaggaggtcc gaggctgcca aaaggcattt ggtctctggc ccaag 415

<210> 402
 <211> 360
 <212> DNA
 <213> Homo sapiens

<400> 402
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 agtctaagag atgaggaaat aacacttctg gaatgaagcc atgcaatccc tggaaaggaa 120
 ctttagcatca actcgggcag tgaccactg tgaccctgtt ggttggccat accaacacct 180
 gccgggcaaa accccatgcc tgaggacttc tctgggcttt gctactacca aacctttaat 240
 gccgggtcta agatgaatga aaatggtttt ctatgaagac cagtatataa ggacagagca 300
 agattcctca tcttcaaata tttattattt cttcttctg gtattagcaa atttggcttt 360

<210> 403
 <211> 433
 <212> DNA
 <213> Homo sapiens

<400> 403
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 tgggcttctc tcaactcaac tcatgtttcc aagatccatc cccattgaag ctggtgtcgg 120
 agcctcactg ctttctgcgg gtgggctgga cctgggtgact tgcttctacc tgatagaata 180
 cagcaagagt gatgagatgt cacttccgag attagggttg acggatgggtg acttccagct 240
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 ggttcctggc atagagtttc taaaaccact ggaatttcct aagtaaaagg ggtgagagaa 360
 gtgtcttttg ttactcataa taagccccct tcaaccatac ttgagtttat tctaanaggc 420
 ctagttgacc tct 433

<210> 404
 <211> 385
 <212> DNA
 <213> Homo sapiens

<400> 404
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 cagggactcg ctgacacttc ttcccaaacc agcagnctgg gaaccatgga tatccatcaa 240
 gaaggggaaa ggtagcactt aaaaccccaa catttaaatc ttaanagcac tgggaagtgg 300
 gacagatncc nccaccttt ttttcaaagg aacggaaggg cctaccttca gccaaaacaa 360
 ngtaaggttt tttggttttg aaaat 385

<210> 405
 <211> 416
 <212> DNA
 <213> Homo sapiens

<400> 405
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 taactgggaa ggaaaggcga gtacacatgg atgagcgcta gaagtctcta ccatagcagc 360
 tggacaaaca acggtggagg agcattccag gcagaaggaa cggaaaagggt gaagac 416

<210> 406
 <211> 256
 <212> DNA
 <213> Homo sapiens

<400> 406

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gaagatcatt	gttctcagag	aagttcttca	tgttatggat	ccgtgactcc	ttaatacatt	120
ttcctacttt	tgaagaaatt	gaactgaatt	tattctattt	atataacagg	aaagatgcca	180
aactgtggat	ctgcttattc	aaagtgactg	aattttgtca	ggctatttat	caacaaataa	240
agtatttgta	attatg					256

<210> 407
 <211> 558
 <212> DNA
 <213> Homo sapiens

<400> 407						
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nacattttca	aanggggcat	ntnaaaaaat	tcncgngngg	acccccancn	cncncagtn	120
tntccccccc	ccaaaggggc	aanccaccng	tacccaanac	cnttggcact	tttgggtctt	180
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ggggcattat	accccnacc	atnggatgaa	tttacttcn	ccntttaaaag	aagggaatg	420
gaggggacct	tgctacattt	cttttcaaca	tnggatnggg	attaaacct	tggaaaacct	480
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ttnccagaac	aagggccca					558

<210> 408
 <211> 419
 <212> DNA
 <213> Homo sapiens

<400> 408						
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gggctataca	agaagaaatt	tcagagaaac	cctaaacaaa	ctccacagct	ctttgcaatg	180
ccaggaagaa	tttttaccat	tatataaatg	ttaggtttaa	tttaatcatt	cacataatgc	240
ctactgatgc	attctcttgc	atagcatgtg	atgtgaaatt	tgtgatttgc	cactattgta	300
ttaaaaaata	agcattaatt	acacactaaa	attaagccat	ttgaatcttg	gaggaggcaa	360
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<210> 409
 <211> 447
 <212> DNA
 <213> Homo sapiens

<400> 409						
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agacatggaa	cangcctgca	gaactttgga	gagtatggtt	tggactattc	ctgcaactcag	120
cgatacggga	caagcacaga	atgcaataat	atttaagttt	gttcaaaaag	ccaaatgctt	180
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ctttgggaag	gccnaggcgg	gccggat				447

<210> 410
 <211> 167
 <212> DNA
 <213> Homo sapiens

<400> 410						
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tgnacctatc	tgctttcaag	ctgggtcatca	tgatgaaact	tagacac		167

<210> 411
<211> 255
<212> DNA
<213> Homo sapiens

<400> 411
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tttcctaacc gatcctttgc aagaaaagt caccactcc tgtagtcagc agctccccta 120
ctgtgcgcag tcagtgtgcc atctcagact agcaaagatt tgtgcttgga tcatctacac 180
ttccctgaat gctgaagaag atatgctatc catgcaatcc ttgtcgactg cttgattaaa 240
aagtggataa actgt 255

<210> 412
<211> 111
<212> DNA
<213> Homo sapiens

<400> 412
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ctctttgcaa atgaacttgt gcaatgtatt aaaacatttt taaaagttca t 111

<210> 413
<211> 561
<212> DNA
<213> Homo sapiens

<400> 413
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ggcgaagaca gtaccaagtc attgcnatnat ctncactcac attcngagtt cctgagcagc 120
tgctctggag gtggattaaa ataaccatc atttcagttt ttataaccca ttcagcattt 180
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gcttgaagtg cactgatctt cagtgaacag ctactgact ctttacagggt ctcaaactcg 300
tgagctcaag cgatccgcca cctcagactc caaagtgtg aaattatagg catgagccac 360
catgcctggg cagcattggg gagtttcaag aactattcca gcaaaggagg ggaacttcac 420
caccgctgca tgtctacctt ggaaagtcan gcagcattgc ttctgctggg ttctctttgn 480
tacaaatatt gaaaatttgc tacctgcacc tgctgtgttc ccaccctctg gagacctggg 540
aacctggctg cacctgggaa g 561

<210> 414
<211> 569
<212> DNA
<213> Homo sapiens

<400> 414
atgaggaact gaggcatagt agtaaaacaa cacacctgat gtcacccagc ttcgaggaca 60
gtgggagagc cagcgcccc cagctccagt cagggtctcac tccctgcaac acgagcaaatt 120
ggacatggcc atgggggcca ggactggggg gcctgccgag gagctggagc catgggggtcc 180
ccagaagtag aggcctagag gcagcaccgg taccactgc acctcagggc tgcctgggtga 240
ccgctctcag ggcagccctg ggctgttctc aagatcaact tcaccctcag gagactaagt 300
tatgcccgagc tgaggatgtt cacaaggaca cactgcaggc cctagaggca atacccttg 360
agaggctcca ggcccacgga ggacgtggcg gccggtgagc aatccaaggc cctggggcca 420
aggtggactg gggtttgccc ttccacctgg gacattccaa gtccacgttt tctcangtct 480
catttaacaa ggaaaaaata gtacacacaa gcactcacgt ccacaaacaa cttcttttct 540
tcctnaaaaa nggaaaacca cctggggcca 569

<210> 415
<211> 433
<212> DNA
<213> Homo sapiens

<400> 415
cctatctgtg nngtgtgntn natgcactgg ggccaancac ttnttcggat gctgntacaa 60

caataatgaa	gttaccatat	tgctccagac	aagagatgct	catggcctca	tggcctgaat	120
taagcagttg	caactgaaat	antaaaaagt	ggccatgggt	gagatacatt	ttaaagatcg	180
aatctacaga	atataacana	ggattaggtg	ctgtangaaa	tgagaaaaga	ctgatggcca	240
gttttggatt	cagcagtggc	tataatcatt	gtgctacttc	ttgggggaag	attggtagag	300
atatgggata	ggagggaaaa	tcaaagaagt	tnccatttta	aaccccgtta	aagtttgaga	360
caccaataag	atatacaagt	tccaaaggtc	aattaccagt	tttggatatg	tgaattcaaa	420
aaagtatgag	ctg					433

<210> 416
 <211> 265
 <212> DNA
 <213> Homo sapiens

<400> 416						
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tccaccaaac	agcaagttct	gcacaccct	atgattgctt	ccccaacgaa	tcagcagcag	120
ttattcccta	gccccctgcc	catcaaattg	tccagaaaaa	ccctaagccc	caagccttca	180
gggagactga	tttgagtagt	aactccatct	cccgcattggc	atagctggac	ttggattaat	240
taaactcttt	ctttattgtc	gtgcc				265

<210> 417
 <211> 501
 <212> DNA
 <213> Homo sapiens

<400> 417						
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cctcctcctt	gtccccacgt	caagagagag	cagcgggacg	agtggaccct	tnggaatcct	120
acctggggct	tcccttcacg	gtggaaggga	agtaggagcc	aagatgcana	ctccctgacc	180
gcaggcgctg	ggccagccac	aatgccatct	tgccccctacc	ctggttttatg	attgttttttc	240
acctttgggc	ccttggccag	agaattccct	ctgcctccaa	tgtacgccat	ccccctcttt	300
cctttctgcc	tgggacactc	ctgcctatgt	gcattgggcca	ggtctggcct	gctgccatta	360
ctatgtggcc	atgagctaag	aatggtttta	tgtttttaaa	tggctggaaa	aaacatcaaa	420
ggaagaattc	tattttgggc	atgtgaaaat	tatctgaaat	tcaaatatca	agtatccaca	480
aataaaatta	aattggaaca	t				501

<210> 418
 <211> 324
 <212> DNA
 <213> Homo sapiens

<400> 418						
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ctctggaatc	aaatcattat	gccgaggcat	ccaggctgag	ggtaaccacg	gatgaaatgt	120
ttcccaagat	cactgggacc	ttcctaccca	catgaggcca	tcaactgaga	ctggctttct	180
ccagaccaga	cttggagggt	gatgctatct	tcacaagtgt	gcaaaaagtca	ataagagttt	240
tgtgtaactt	tgctcaggat	actttgaaaa	attgtttaat	tttttatttc	tggttatgca	300
tattttcaac	tattaaaacc	atgc				324

<210> 419
 <211> 433
 <212> DNA
 <213> Homo sapiens

<400> 419						
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agcaatgcaa	tgggcacacc	agcaggctct	tgaaggcact	gccatactgc	acagcttcca	120
caggcctgga	gcctgaatcc	tctgagacac	atcgtccctg	aaattgaaaag	attggcactt	180
caccacacac	tgagacggga	aacatcatct	cttcctagga	ggacctgtgt	gacccccgct	240
gcatgaaagg	tttctcact	cggtctgcag	tggcaggccc	acactcggca	ttccccggag	300
tcctccagtg	cctgcgtgca	ctttctcttc	ttggttgagg	gcaatgaggc	tctaaaatca	360
aagacaccaa	aacgaaggnt	aggattcttc	cttgngtcca	tgntatgtta	aataaaaaatt	420

aatctttccaa gcc

433

<210> 420
<211> 449
<212> DNA
<213> Homo sapiens

<400> 420
tngctgncgn tgccanngan gctctatgga atgngncct gccngtgtca nccccnagtt 60
ccaacctcca aagcacggnt ggagagcagn ggngcaatct cggctcaatg caacctccgt 120
ctctccctgg ttcaagtgat tctcctgcct cagcctnccg agaagctggg ntaacagcgc 180
cccntttta cagatgatac cattgaggct natcanttaa atnncctggc naaggccaca 240
ctgtggaact gggattccaa tcagggtctaa ctccaatgca atactccttc cattatactt 300
tctttaacct gccatactaa catagcacat agcctgcgac agtttaaaaa aaaaaatcct 360
ggccccctta aaataagtga ttcattattt ttttaatta taaactgcta ctgccaaata 420
gaaaagtaaa gtcgtttcat taaaaatgg 449

<210> 421
<211> 308
<212> DNA
<213> Homo sapiens

<400> 421
atattgaact gaaaccacca ttgagtcaat tctgtggag cctctgcctg aaaatgagat 60
aaaagtcaag atgttgaaaa cgaaatttta aagggccttg tcgaagtcac cggcagtga 120
gaatgagatg ttaaaatcag atgtgatatg catggggaca ggagccattc aaaggccgt 180
ttcatcactg aacagctaga cctccgttct ggttgccaa cctcaggagc tgatggatac 240
aggttggaac caagcccagg ggtcctccgg aagaatctaa aacaggcaaa ataaaaatgtc 300
ttccaaac 308

<210> 422
<211> 327
<212> DNA
<213> Homo sapiens

<400> 422
tcttccttat aggataatgg gagttttaaag atgacagaa gacagttggg agcagagtga 60
gaataagaac cctcaactgc tgtctcacct ttcagatcac gaagaaagt tttacaatg 120
agcagaacac tcaacctgaa agcagaatgg attgagtcac tgcagccgtg gcagtggaa 180
ggtgtttgat gttggcaaa gaaacatgta cttctagact ggacagtttt cccttagttt 240
acagtttcca aatagagaca tcactttgaa ataacatgga gaacatacat ggatgtactg 300
aacgaagaat aaagtctgtg ttgcaag 327

<210> 423
<211> 284
<212> DNA
<213> Homo sapiens

<400> 423
cagaggaaga ggagcgactg aagaagaaag aggggtggagg tgaagatgtg gagctcatat 60
tgaatctttg gaaaagtga aatggctttt agtatccagt aagaagagta aatagaagaa 120
ttttagccac aaatggaaaa gaaaacgtct cttcctcagc tcaaagagac aagctcttgt 180
cagttcctgt aaaatttaat gctgggtggc ctggaagcac atttctcaga caccctagca 240
aataggaatg accaagtaat attattttgc caataaaaat atgc 284

<210> 424
<211> 464
<212> DNA
<213> Homo sapiens

<400> 424
gtatattacg ttcttatatg aatgacagac nanacatgga atttgaagga aaggaagatg 60

accgttaagg	tggtanggcc	tttganccca	agctaagcca	tcatatcccc	tgtgatcttg	120
cacctacaca	tncagaatgg	cctgaagtaa	ggtgaagatc	cacanaagaa	gtgaaaatag	180
ccttanctga	tggtattcca	ccattgtgat	ttgtctctgc	ctcaccctaa	ctgatcaatg	240
tactttgaaa	tctcccgac	ccttaagaag	gttctttgtg	attctcccca	cccttgagaa	300
tgtactttgt	gagatccacc	ctctgcccgc	aaaacattgc	tcttaactcc	accgcctatc	360
ccaaaaacta	taagagctaa	tgataatccc	caccctttgc	tgactccttt	ttcggactca	420
gcccacctgc	accgggtga	aataaacagc	cttgctggtc	acac		464

<210> 425
 <211> 317
 <212> DNA
 <213> Homo sapiens

<400> 425						
ggctctttct	cacttggatg	ggtcccanaa	aggcaactng	catgttacca	aatgncctng	60
naaaaaganc	nngtaaggag	gancggagga	aggcntttta	ttgacagcct	tcgaggaaact	120
gaatcctgtt	ggtgaccatg	tgagggagct	tggtactccg	tccccctgtg	ttgagccttc	180
agatgaattg	gcagncccca	gcttgggtggc	atgactgtaa	cgctctgaaa	caccttcagc	240
ccagaaagca	ttcagctaaa	ccacacctgt	atttctgacc	caaagaaatt	gtgagataat	300
aaacattttct	tctctcg					317

<210> 426
 <211> 259
 <212> DNA
 <213> Homo sapiens

<400> 426						
agaaagagaa	aataactccaa	atcagaagnt	aatggccncc	nngctttcn	nnngcnttnn	60
cnmntnanna	tngaaccacc	ntcttaant	tntgggagga	taaagcatca	ggttaaaaagc	120
tcacctggat	ttgcgtgcct	gagcagaaa	acagaagagg	cctgggaccc	aactagcatc	180
atactactgc	ttcatcagcc	tagatgactg	cctaccttcc	tatctttctt	acaagacaaa	240
ataaactccg	tatttgttt					259

<210> 427
 <211> 403
 <212> DNA
 <213> Homo sapiens

<400> 427						
ggaattgaac	agcttggact	tggtgacccg	tgnggggttaa	accnnaatta	gnagggcggn	60
ngaaaaggac	tnccanatng	aattgtgttg	gntattcata	tccccagca	cctcaaaaatg	120
tggtccatgga	ggatggagac	agagattgga	gtgatgcac	ttcaagccta	ggaacactaa	180
ggattgtctg	taatcaccag	aagctggaag	angcaagaaa	gtgtcctttc	tagagccttc	240
agagagagcg	cagccctgcc	aacaccttga	ttatatgctt	caagcttcta	gaattgtgag	300
agaataaatt	tctgttggtta	taagccnaaa	aaaaaaaagg	cngncggggg	ccnttnagnt	360
gggactnanc	caggcngaac	ttnttcaaaa	gggggggggg	ccc		403

<210> 428
 <211> 376
 <212> DNA
 <213> Homo sapiens

<400> 428						
gggttcagaa	aatgctaccc	caaagtactt	tgaactgaag	gtgattggga	gggcctaaga	60
agcaagaagg	tcactctgag	ttctctctgc	ctttcaatgt	gagacctgcc	aaaagggaat	120
tctctgtcct	acctcaactg	aaagtagctt	gtaagaactt	catctcaaa	gggtactgca	180
ttatactctg	aggccaagaa	aagtcaacgc	agaggccttc	ctgggtccct	ctcccccaat	240
ttgttaccat	acccttttgt	cccatcatat	ttctacatga	ttttactgaa	tctaagcaca	300
aaaataactca	gttgtccctt	gggtgttggt	cctcatttct	aatgggtttc	gttccccata	360
aaacttttgt	taatgc					376

<210> 429

<211> 394
 <212> DNA
 <213> Homo sapiens

<400> 429
 gcttcgcatg tnttanaggt cctacacnca nattcaccta ctncanggga ttcaagtccg 60
 tcttatgttc tgntaatgac aactcttntt gaagttcttc anggccgtgt gaaaangaaa 120
 agccngcccg gcacagtggc tcacgcctgt aatcccagca ctttgggagg ctgaggcggc 180
 ggatcacctg atgtcangag tgcgagacca gcctggccaa tgtgtctgta ctaaaaatac 240
 aaaaatcagc cgggcgtggg ggcgcgtgcc tgnaatccca gctactcacg ancctgangc 300
 aggaggatng nttgaacctg ggaggcggan cttgcattga gcntgggtca cactactgca 360
 cccagcctg agagaaagag caagacttcc gtct 394

<210> 430
 <211> 343
 <212> DNA
 <213> Homo sapiens

<400> 430
 atggaacccc cggcatctgc tcctagtaga ggccagtctg ggccctgacct ggcattccac 60
 cctgcagata gcgagaactg ctgcagcagc cgccctagac cattctgcag ttctgatgca 120
 cagcatgatg gaagcatatt gcagaagatt attctggctt ttgtagatag tggattaaat 180
 tgggacagtg taagaatggg aattcagata gcccatggat ggacttcaaa atatcaccct 240
 ctaaaattgg actcaaattt catgttcaga tgcccgtttt ccccaactgca agaggaatcc 300
 aactttcatc agatccttgc atcaattaaa ctttccttac tgc 343

<210> 431
 <211> 373
 <212> DNA
 <213> Homo sapiens

<400> 431
 ctccctgctta agtcgaactg aggggnntca aatagcnata nnntccctng nnaenggcng 60
 ccacntccaa anggccggtt cnngccttan tgatgncatt tccccaaan aagngaaant 120
 ggccctgttc tgccctactg atgacatggn cttgngaaat tcccttctct ggctcatcct 180
 ggctcaaaaag ctcccctact gagcaccctg tgacccccac tctgcccgcc agagaacaac 240
 ccccttttga ctgtaatttt cctttaccta ccgaatcct ataaaacggg cccacccta 300
 tctccctttg ctgactctct tttcggactc agcccacctg cattcaggtg aaataaacag 360
 ctttattgct cac 373

<210> 432
 <211> 386
 <212> DNA
 <213> Homo sapiens

<400> 432
 gtaaaattga cttgaagtcc actcagcgtc actgtatgtc taaaaataaa gaagcttgga 60
 aagcctggat ggaaccctga gagacaggct agtccctcaa gcagttgcta aagagttgag 120
 cggtttcttc tgaagttcaa gataacacta ccgaagaatg ttatcacccg ctogttctac 180
 aattcgtcga agtgaatcct gctaaatctt tgctcttctc acgagtcaga cctactgcta 240
 ttagtggaat ctacttatga aatgaatttt atttctaaat ttctaatacat cttgcaatgc 300
 aatattaggc attgtcctct cggtcgcgta acctgatcaa actgggggtcc ctaaataccaa 360
 acacgcacat acagcgtgtc ttctaa 386

<210> 433
 <211> 267
 <212> DNA
 <213> Homo sapiens

<400> 433
 gaaattattg taactctgga attttagaag gtgactgcnt gacaattctg agaggccaat 60
 gccaatgaga gaaaagtta ctgctactca tgatggcgcc cctggaagca gaagacacag 120

cacgctatag	agggccatgt	gggaaagcac	tggagtagct	ccaggccggg	cttgccagtc	180
tctctgcact	ctggaaggag	tttgccctggg	ttgggggttgc	ccttgtnat	tccaaacctt	240
cattttgtca	atttacttaa	aggtgac				267

<210> 434
 <211> 243
 <212> DNA
 <213> Homo sapiens

<400> 434						
ataagggcct	cgctctgtta	cccaggctgg	agtgcgtgtg	tgtgtttgtg	actcaccgta	60
gccttgnact	cctgggctca	agcaatcctc	ccacctaagc	ctctggagta	gctgggacta	120
caggtagca	ccgccaagcc	tgacctcaag	ttgaaatgtg	atcaccaatg	ttggagtggg	180
gcttaatggg	tggtgnntan	gctnngnatg	aaaccattgn	cacnaancca	atggggatgg	240
tct						243

<210> 435
 <211> 307
 <212> DNA
 <213> Homo sapiens

<400> 435						
agctctagt	ccaaatgatg	aatcttttct	attaactgac	ccagtcttca	aaaaagaatt	60
gctagcctga	gaaatgtgga	atgcctggct	tctctgacta	gtgttgacac	agttgtttcc	120
agcgtgaaca	tacctgtaca	agtgaagcca	tcacctgtgt	atccttcctt	gcacagacag	180
cgggtcaagaa	aaaaacctgc	aacttggatc	caatataaac	gatgacaaat	ttcaaagaag	240
tggaagctaa	attaatgaaa	aatgttatgc	aaaatgtttt	ataatatagt	taaaatgtat	300
gagtttt						307

<210> 436
 <211> 332
 <212> DNA
 <213> Homo sapiens

<400> 436						
gtgacggagt	gagagaaaag	tcagaacctt	ctgctcacc	aggataaatc	atagtactaa	60
tgattgcagt	ggagcaaact	tatctgaata	ccagacagca	agaaagtcc	tcttctggga	120
gaagagttac	caccaaccaa	gacaacaaca	ctcagaagac	tgatttttga	acgattttcc	180
aacactcacg	tctcaattcc	tcttttctaa	aagtcaacaa	aatcctggag	catatcgcca	240
gttttcctta	caattgatgt	acatgtttgc	tactaatttc	tatggactcc	cttaagtcct	300
ataaattgtc	taccaaattc	tcaaaaaaag	cc			332

<210> 437
 <211> 392
 <212> DNA
 <213> Homo sapiens

<400> 437						
gtggcagttg	ctggagtacc	agggcaccaa	gtggaggatg	tggtagacag	cctctaagat	60
gcgccccctg	ccaatgatct	ctgcctccag	ggaggagcta	gaaggcagag	agaaagccac	120
tcaggacttc	ccatcccaga	agataaaggt	gaggaaagca	gcagcagcag	ccacaggcca	180
gtattccaga	gcagcttttg	gttcctgtca	agacctgctt	tgagaaggag	gtggctgtgg	240
ggctggaggg	ctgggcctgt	tcttgagctg	gctgctggca	ccacagcaat	gaggcaacat	300
tgagaactgc	gacacgaggc	ccagtcctgc	tactaaacca	actgtgtgga	cttgcatagt	360
cacttcaccc	ctcgggcctc	catttctcca	ct			392

<210> 438
 <211> 351
 <212> DNA
 <213> Homo sapiens

<400> 438

ngangggntc	ttgctatggt	gttnatgcng	gtnnacacnct	cctggngctga	nntgannctc	60
ccaccnaatg	ctacanaagn	gctggngtta	cttacctaaa	cctacaatgn	gaagagaatn	120
tgacactatg	atnccanctg	gaaaaccacc	ancacccaac	atgcnngctn	ccaatctctc	180
gaatcgtcac	tgtgcctccg	aacaccactt	agttccctca	aatatgtcct	tctaacaagc	240
aggcgtgctt	tcgtgtattt	agaacaaatc	ttaaagtac	acatgcatcc	aaatcttaaa	300
attcagaata	aagaaaagca	gagaaggaca	gaagaaagac	taatgctacc	g	351

<210> 439

<211> 396

<212> DNA

<213> Homo sapiens

<400> 439

ctatgcatgg	aangagtga	gaggatgctg	ntggcagaga	actcatcggc	agcagcccc	60
anaggataat	gtacaaggca	cgttntgtnc	agggagtctg	ccngcctggc	caagagcacc	120
cccaaaagca	cttggaaatga	gcccagctac	nccaagggtg	ggagatntgc	caatatcatg	180
gaggggagaaa	tacacatcta	gnntatgacc	cagcatncca	naggcctgca	ggctaaccgg	240
cctncctgga	agaaaacaga	aagtagaggg	cctgtcactg	ctggagatac	ccacgatgga	300
gacaatgctt	cagcagtga	cccagggtgc	gccatgcaat	ggcatgagag	ctctgccttt	360
gtccatcgac	atggaagtga	aataaaaaga	aaactt			396

<210> 440

<211> 350

<212> DNA

<213> Homo sapiens

<400> 440

gaaccaagag	aagcttctca	agggtcagat	tattccagct	acctcttgga	tgcccccgag	60
gcctctctac	aaactgagt	ctgactgtga	ccctccatga	tggggaagaa	aggatcatac	120
cctttccacc	cttacacttt	ctaggcaaaa	tacacagtaa	tcatcaagga	atttggttag	180
gcctcatct	gactggttcc	ctatttcctg	gatcccatat	ctgattcttt	ctctgtttat	240
tcccctattt	tggaagacca	catcctttct	aaaacagtgt	gcatcagaag	ggaagtgttt	300
tctacattct	gcacccataa	aataaatgtc	tctattctac	catgtgactg		350

<210> 441

<211> 374

<212> DNA

<213> Homo sapiens

<400> 441

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cccacgaaag	naaaacgcct	tggngccna	ncccccaatt	tncttacttt	catggggang	120
gggaaaatgc	ccaanggatg	cttntaaaaa	tcaccaccgg	ncttttaaacc	attgccccaa	180
aaccgggtaa	gttttgnggt	gttgggcttg	ggtccacttg	tccctctggn	caacctaaac	240
agggagggna	agaaaccaag	ggcttacna	aanggatgtt	tctttcctga	ggggaaacca	300
ctcctataga	ctcctctnga	antccaggaa	ggaagtgggn	aaaaccatc	tctnntaat	360
cacatttttg	ggat					374

<210> 442

<211> 153

<212> DNA

<213> Homo sapiens

<400> 442

gtgaggcagc	catattgtga	ccatgaggga	aagaccatga	gaactgaagg	gaaatggact	60
cagaaccag	atattgtaag	gctcctggag	aaaccctgga	aacatctact	tctcaacgtt	120
ttcgcttg	agctaataa	acaccctatg	ggt			153

<210> 443

<211> 77

<212> DNA

<213> Homo sapiens

<400> 443
aaattccaaa gaacatggaa aggagaccac aggaagaatc cagaactgct gcccatcata 60
aaatTTTTcc atctgcg 77

<210> 444
<211> 430
<212> DNA
<213> Homo sapiens

<400> 444
tttcttggca cgctggctga agacatgttg cccacaagct gagggaggtc cttacccgtg 60
gacgccaaagc tccgggaggc tgcagtggcg gcagctgagt ctgcaggtgg agaggtgcag 120
ggactgtttt gctccaccc ccttcaatac ctacttttct ttccagcaac agtcccttcc 180
cttacgctcc cgaatccacc ctggccctga ggctgcacct gactaccaca tcttgacccc 240
acttgtttgc aagacgtctg catgtccaca agtgcagcgt tcatctcatc tcaacaagcg 300
atccctccgg agcagacggg tgatccctac caccttctga acactcctac tcatcatctc 360
ggtaacaccc tctacctgtt ccatacctag gccagaggtt ttcaccccgg ccacacgtca 420
gtaccactta 430

<210> 445
<211> 337
<212> DNA
<213> Homo sapiens

<400> 445
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attaaatatt cagcccatgc cagagtggag atctcctttt caccttctgt ctgaattgtg 180
ccttgaatct gtttcgcgat ggggtgcgaac tgggtgagac acttgctcta gaaccgcagc 240
cctggcaact ccacgccgc tgacctcgag ccggtttcca tagcctgaat ccttcctctc 300
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<210> 446
<211> 266
<212> DNA
<213> Homo sapiens

<400> 446
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cagatggcaa ggcgcctgt ctgatgctgn ctgctgggc atggactgcc ttttccttcc 180
agaccttttc ctggatatgg ccaagtctga agtttcaaaa tacatgttat tctgaaccta 240
ataaagaaaa catatatcca accttt 266

<210> 447
<211> 443
<212> DNA
<213> Homo sapiens

<400> 447
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ttaactgatg acatggtctt gtgaaattcc ttctcctggc tctcctggct caaaagctcc 180
cctactgagc accctgtgac cccactctg cccgccagag aacaaccccc ctttgactgt 240
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ctctcttttc ggactcagcc cacctgcac caggtgaaat aaacagcttt attgctcaca 360
caaaaaaaaa aaggncnng nggccaattn agnttgagct taaccaggcn gaacttgntc 420
aaaagggggg gggactaccc ccc 443

<210> 448
<211> 514
<212> DNA

<213> Homo sapiens

<400> 448

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accacagagt	gccctgcaga	attgggttga	aaaactaaag	aaggcaaaca	gagtttatgg	180
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ggcatggaga	aaagagcatg	gatttgcaga	agagacactt	gagagagagc	tgactgtgat	300
ggtgatgctc	acagggaccc	ttgaagacat	gagttaaaga	tcgtagaagc	atgacaagtt	360
ggatacctga	atgactgtgt	ggatctgagt	ttcccagtcg	cctgcagtac	atgatcacat	420
tgtttatgag	actgactatg	tctgagccan	aattgattgc	atctatttga	tgctgcaact	480
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<210> 449

<211> 239

<212> DNA

<213> Homo sapiens

<400> 449

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ggctgggac	tgctgggttc	tactaggtga	attgaattgc	tccatgccag	tggaataatt	180
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<210> 450

<211> 503

<212> DNA

<213> Homo sapiens

<400> 450

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tttagagcca	gattccttat	ccaatgggca	aggaaggggt	ggcctgttga	aacatcctga	180
aatacatcaa	ccaaaatac	gaccaacaaa	aatgtggctt	ccaaaaataa	ctccgccagg	240
cgggtctgtg	tgccggctgg	gaggaaagag	aggtgggaca	gaaccagctt	ggaccttccc	300
ccatcccagg	agtggccatc	ataccagcgt	cagtgatccc	agcctcatac	ctttgccttg	360
agactctgca	ttctgttgct	tggtgatggg	cactttgttc	atataaatgt	actcctcatc	420
agagcctgca	gaaggaagga	gacacaggct	ttgtgtgact	tcctgaagag	aaagggcctc	480
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<210> 451

<211> 215

<212> DNA

<213> Homo sapiens

<400> 451

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gattgtgcct	aagaatagcc	actgtgctcc	agcctggaaa	acatagcaag	acaaaaaaag	180
aaagagaaaag	aaagaaaaaa	aagaaagaaa	gaaag			215

<210> 452

<211> 418

<212> DNA

<213> Homo sapiens

<400> 452

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cntgcccaatt	gntaatggga	gataattcct	ttaggggaagc	aatgaagggt	aaatgaggcn	180
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gtctacaaac	caagaagaga	agcctctcca	gaaaatgaac	cctgctggaa	cttggctcttg	360
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caacccgcag	cttggaaagg	aggcaggcaa	gctagtccgt	ggacccataa	gtgataaaaa	180
caaatgcttt	cattat					196
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agcatcaaga	gaggaaagtt	tctagtgatg	gtttgggtcat	ggtctctttc	aggatgattg	180
catggcagag	gaaggaataa	aactgtgaaa	g			211
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<213> Homo sapiens						
<400> 457						
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ccacatcttc	ttccaggaac	agagcccaac	ataaactggt	agggtttgct	gtcttagaca	180
gctaagagaa	cgaggagtgg	agctagtga	caagcagtga	agggggcagt	tccttaatgc	240
cacccgaact	gaatttcaac	agtctgacaa	gctagcgttt	tgggtaaata	tcccagtata	300
cttgtcacag	agttaagtaa	aatggacttc	cttcaaagga	agtgccttta	atacaataac	360

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<210> 458
 <211> 190
 <212> DNA
 <213> Homo sapiens

<400> 458
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 ccaagctgggt actggcaaag acaatgataa ttctcgtgag aaaggtaatc ttggtgtgggt 120
 gaagaggggtt tgcattggaat cagaagaatg ggcaaagggtt cctctgcaag atattggaaa 180
 gaagacgaag 190

<210> 459
 <211> 370
 <212> DNA
 <213> Homo sapiens

<400> 459
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 ttagcccggn angtcattgct ctccagggtg taaaacccaa gccagcttc gggcacttga 180
 agacaaggac tccatccacc caggcaactt tcccgagcct catgggagca actcctcatg 240
 aatcccaggc ttctgttgcct tttgctgcct atctataaga aataaatcca cttcatttaa 300
 cctgcaaaaa aaaaaaggcc cgngnggccca attcagcttg gacttaacca ggcttgaact 360
 ttggttaaaa 370

<210> 460
 <211> 161
 <212> DNA
 <213> Homo sapiens

<400> 460
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 ccaggatgca ttttataata aataagtata tttggtgtga t 161

<210> 461
 <211> 425
 <212> DNA
 <213> Homo sapiens

<400> 461
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 ttcttgcctt aactgatgac atttcaccac aaaagaagtg aaaatggcct gttcctgcct 120
 taactgatga catggtcctt tgaaattcct tctcctggct catcctggct caaaagctcc 180
 cctactgagc accctgtgac cccactctg cccgccagag aacaaccccc ctttgactgt 240
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 ctctcttttc ggactcagcc cacctgcac cagggtgaaat aaacagcttt attgctcaaa 360
 aaaaaaaagg ccaggggagg ccaattcnag cttnnggactt aaccaggctg aacttgctca 420
 aaagg 425

<210> 462
 <211> 268
 <212> DNA
 <213> Homo sapiens

<400> 462
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 atggatagta ctgaatccta tatatactgn ttttttctat acatataata aaaggttata 180

aattacgcnc agtaagaaga ttaaaaactc aaaatatgag ttaaancncat atgcnatata 240
atatatgcaa taaaattgaa atactggc 268

<210> 463
<211> 287
<212> DNA
<213> Homo sapiens

<400> 463
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gtctgcaaga atccctccca cctgtcaagt tatggggatg aatatgtata aaatgcatca 180
tgtatgtgta cctgtagaaa aacttgatt gggatgtgca gaggaataa agcaaacagt 240
tttttaaaaa nncaaaaaaa aaggccaggg gggccattc ccctttg 287

<210> 464
<211> 236
<212> DNA
<213> Homo sapiens

<400> 464
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ggggagacgc cagcacagat tctccctgag agtatccaga agaaaccaac cctccaacac 180
ctggatttca gacttctgac cttgagaagt gtgagccaat aaaacaactg cagtgg 236

<210> 465
<211> 283
<212> DNA
<213> Homo sapiens

<400> 465
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cctaacattg caaggtcaaa tagcactaca tgagaaattt atacttcagt gaagacattt 180
tgacaaaaac taacattgtt taaatcacca gtaatgttaa gctgctttat acatgtccca 240
ttctgtcaaa ggtaaataa aagagcaaga tcttcattcc tac 283

<210> 466
<211> 256
<212> DNA
<213> Homo sapiens

<400> 466
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tggaagtgatt caaggaagaa gccaccgagc caaggaatgc aggtggccac taggagctga 120
aaaatgcaag ggaaccgatg atccctcag agcctctgaa ggagccaccc ctgcccatac 180
cttgacttta gccagtgaa actggttctg aatttctgac ctttagatct gtaagataat 240
gaacttgtgt tgtttt 256

<210> 467
<211> 457
<212> DNA
<213> Homo sapiens

<400> 467
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ctgaactcct gcttggggca aagttgcaa aaaagacttc gttatataac aacaccagag 180
gagagcaaaa gacttctaga ctttgggggc tattttaaatt ctggtggagt ctgcctctgt 240
catccaggct ggagtgcagt ggggtgatct cagctgactg taacctttgc ctctcagggtg 300
tcaggcctct gagccaagc taagccatca tatccctgtg acctgcacgt atncatncnc 360

anaggccccgg accaattgaa aaattcncaa aaaaagngaa aanggccagt tcctgcctta 420
actgatgaca ttaccttgng aaattccttc tcctggc 457

<210> 468
<211> 290
<212> DNA
<213> Homo sapiens

<400> 468
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gaatatgccg gcaactgaaag ttgttagcaag aagacagncc nggccactaa aagagggagg 180
ngatcgtgct ggccaagggt atcggaatc tgggagatgc agatacctgg agtttccttt 240
gctctttcgt gtcataattca aataaaaatn aaagttttct tcagtccttt 290

<210> 469
<211> 435
<212> DNA
<213> Homo sapiens

<400> 469
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ctctcttttc ggactcagcc cacctgcac caggtgaaat aaacagcttt attgntcaca 360
aaaaaaaaa ggggccgggn ggggccattt aantttggga nttaaccagg tngaacttgt 420
tnaaaagggg ggggc 435

<210> 470
<211> 191
<212> DNA
<213> Homo sapiens

<400> 470
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aacacaccat catctgcctc tctccaaagg acgggggaga cgcctcatgt gagatggaaa 120
ttaagcctca gaagcagtc tttttcttta tattgtttgg aattaaaaac atattaaatt 180
gatccattat g 191

<210> 471
<211> 307
<212> DNA
<213> Homo sapiens

<400> 471
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ccggcgacc atactacatt ctgactggtc cagaagaatg ttcaccacag ttcccagag 180
cccaccggaa atgttctgac aactgtttgc taaggccaca cagcccgttt caaggggtgg 240
cagtgtgat cctaattcca gtgaagtga tctcacctgt tcaaattaaa gagaaagtgt 300
ttgaatc 307

<210> 472
<211> 593
<212> DNA
<213> Homo sapiens

<400> 472
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tcctgggttct	ttgcattcct	ttgcgcttgc	accccttggg	accattaaaa	aagaagaaag	180
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ggtgcccacg	ttaagacgct	cctgggtggg	cgtaangcac	ccgttaagct	atgggtaagc	360
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<210> 473
 <211> 676
 <212> DNA
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<400> 473

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cccaaaccgg	ggcctggcct	ttttaaat	tttaccacca	ggggaanggg	acttcaccat	660
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<210> 474
 <211> 421
 <212> DNA
 <213> Homo sapiens

<400> 474

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tgccacacac	ttttaaaacc	atcataatntc	atgagaactc	actcactatc	acaanangag	180
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gggggattac	aattcgacat	ganatntggg	tggggacaca	ganccnnacc	atatcacaat	300
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tgtcttgc	atggaggctc	nctncaaaag	attaatatgc	ancaatgggt	gaaccacaca	420
g						421

<210> 475
 <211> 249
 <212> DNA
 <213> Homo sapiens

<400> 475

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ttaatcttt						249

<210> 476
 <211> 452
 <212> DNA
 <213> Homo sapiens

<400> 476

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tccttacttg	tgacaagtaa	taaaactcct	ag			452

<210> 477
 <211> 276
 <212> DNA
 <213> Homo sapiens

<400> 477						
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<210> 478
 <211> 300
 <212> DNA
 <213> Homo sapiens

<400> 478						
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gccacgattg	ctgtccgggc	agtctcacc	acggggcaga	ctgaatcctt	ancttgctgg	180
tttgtgtcat	catccggcat	caggctcagt	tcaaatacca	gctcctccac	ttccaagttg	240
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<210> 479
 <211> 432
 <212> DNA
 <213> Homo sapiens

<400> 479						
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cgcacacagc	ctcaggagcc	gccatgacaa	ctgaagatgc	tacacgaagg	ccaggggatg	300
ctgccatgtc	ccccangcag	gtgccccgca	gcctgtggcc	ccacgccatg	gtccagtgtg	360
ggggggaaca	ccnttgattt	ttaataaaga	gancagaaga	ccctggctgg	gtctntnacc	420
actggcactt	ct					432

<210> 480
 <211> 441
 <212> DNA
 <213> Homo sapiens

<400> 480						
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gcaggatata	atattctcgg	gtcacacctt	ctttcagaac	ttgcagacac	tgcattatth	300
cttttggcac	tgaattcaac	tgggagaagt	ctgnggccag	ccaatgtttt	aaccatttga	360
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<210> 481
 <211> 304
 <212> DNA
 <213> Homo sapiens

<400> 481
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 agatgggtct cgccacgttg ctcaggtggc cttgaactcc tggacttaaa taaatcctca 180
 tatctcaact tcctgaacag cttggactac acatgtgtgc caccatgccc agttattaac 240
 ataattttta aataacatct cctgttctac tataaaagta agtgaataa aaggtcagaa 300
 aaat 304

<210> 482
 <211> 423
 <212> DNA
 <213> Homo sapiens

<400> 482
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 ccaggcatgg tggtctcacac ctgtaatccc agcacttttg gatgccgagg cagctggatc 120
 acttgtgggtc aagagttcaa gaccagattg ggcgacatga tgaaaccccg tctctactac 180
 aaatacgaaa attagccatt gtgggtggcac acgcctgtaa tcccagctac tcaggaggct 240
 gatgtggggag aactgaaccc tggaggtggg gattgcagtg agccaagatg gcgctactgt 300
 gctccagcct gggcaacaaa gcaacactat gtttttaata aataaataag tgctgagatc 360
 tcagaaaatt nnnnnnnnnn nnnnnnnnnn naaccnnaa aaangggggc gggggggcca 420
 ttt 423

<210> 483
 <211> 402
 <212> DNA
 <213> Homo sapiens

<400> 483
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 agtccttgct ggggtccctc actcagtcta gagtatcact atgagatcat accttttggt 180
 ccaagcatat ttctacatgg ttatcaatca tgcctatcca aggaagtttt cataaaaggc 240
 ctacgaggac atgatttgga gggctttcag atagaggttc ctggaggatg ccactcccag 300
 ggagggcatg gagcttccag gcccttccc ccatacctgg cctgtgcat ctcttcatct 360
 ttattcatta taatatcctt tgtaataaac cagtaaatgt gt 402

<210> 484
 <211> 497
 <212> DNA
 <213> Homo sapiens

<400> 484
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 ctaaggactt tagaagttag gtagcctccc aggacaccaa gacacctccc ccaagaaatg 180
 actccatttg tacattttca tataatgttc tttctacaag aggatctttg taatttacta 240
 gacccttttc tttctcaaaa tacatgagga taccagagga attatcttct aacctcatt 300
 ttgacccttt cacctacaaa cttgattgga tctgcctaatt ctctgaggaa cttgctaagc 360
 tctggttgct aatttatatg gccagattga cagaaagtat gaaagtctg tggaaactatg 420
 tttactttca cacatgaacc agtganggaa gccagttcat ctggtgatgc acattgatgg 480
 ctcttcttgg tcccaa 497

<210> 485
 <211> 526
 <212> DNA
 <213> Homo sapiens

<400> 485
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cactcaaaga cccaaactga tggagaagta aacatcccta ccagtcacag tggcagaagg 180
aaagaaagct ttgaagtgtc ttcaactgga aatcaaattc tccatcctag aagagacgat 240
cattattttc ttaatgatta attatttaca acttgngggac ccggaagtca ttatatgacc 300
taccccaatc accaggggact ttgtagtata attttaccac atctggaatg cagacaggcc 360
taatatattg gccaaaaaaa tcaagaacta ctttgatcaa gcntaaanta aaagggtggtt 420
ttaaggaaaa gttannnnnn nnnnnnnnnn nnnnnnnngg gggcngnggg gcccnttnng 480
ttgggattaa cccgggttaa nttttttnaa angggggggc ccccc 526

<210> 486
<211> 513
<212> DNA
<213> Homo sapiens

<400> 486
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gggaagcagg tgtcatcaga gcagttccac agccctctag gcacagtaac aggcattgctt 180
tctgtccttc tctcctttta gattgtaaagc tacccaaagt ccatctccat gggttttttt 240
ccttatgtgc aaactaccat atgacagggtg tgcctgacaa taactcaggt atagctgaga 300
atgatcctgt agtccaagaa tgttggttct gagctctgaa ctaaggaatc tgggagctgc 360
caacccaaaa ggttactcct tatctatgga gcataagtgaa acccctggcc catttcttgg 420
nacaacatgt gcngggnaac caaggccttt ttttttaact aagggggaag ggggnccggn 480
naaaggcccc caggaaaaag ggggcccggg ggg 513

<210> 487
<211> 436
<212> DNA
<213> Homo sapiens

<400> 487
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attacaggcg cgagccactg caactggccc attaaatttt taaccccgta cttgacggat 120
cagctgacac taccagagcc agtaatctgg ctcaaccagt cctgcgatcc caccaggaa 180
cagaagacag caagaaaacc tcaactcaac actcccgtcg atgactccat cgacctcagg 240
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aaactcggat cccctaattg tcagcgggaga ctgattttgag caataataaa actctgggtc 360
cctgcaaaaa aaaaaagggc cgggggggcn attnannttg ganttaacn ggnntnaactt 420
ggttaaaagg gggggg 436

<210> 488
<211> 90
<212> DNA
<213> Homo sapiens

<400> 488
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gtgactgctg atttgcctaa ccccatgt 90

<210> 489
<211> 515
<212> DNA
<213> Homo sapiens

<400> 489
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gggaggccaa ggcggggagga tcacgaggtc aagagattga gaccatcctg gccaacatgg 120
tgaaactccg tctctactca ggaggctgag gcagaagaat tgcttgaacc tgggaggcag 180
aggttgcagt gagccaagat tgcaccacta cactccagcc tgggcaacag agtgagactc 240
catctcaatc aatcaataaa atcaacatat taaatgtcaa aataacttaag taaaaatgtt 300

ctacttgttc	tatgtcactg	aaagaatagt	cataaaaaatc	cagtatgaaa	gtttttaaca	360
gactacttta	tttacattct	attacttgat	aagcagcact	tgaataacca	aattttatatt	420
atcccagaaa	gttatggaca	ctangtgctt	caagaagttt	gctgaattaa	angacagatt	480
tacttattgg	cttttgggta	aaaattatgc	aaaaa			515

<210> 490
 <211> 528
 <212> DNA
 <213> Homo sapiens

<400> 490						
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agaggcattc	ttactattcc	aaaacaagga	aagggtaaaa	ccaagatgtc	aaaggccccc	120
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cctaacactg	gaacagggat	caacccaagt	gcttgggggt	caccatgtcc	tcctccccag	240
ccaggacagc	aagtggaaga	cacaggcgag	ctgaaagagg	ctcactgtgt	gcccagccct	300
aaccccctgc	ctcattggca	ccaggcaccc	aggactcctc	agaactcaga	gccaggggtt	360
gggcagcctc	ctcgtagtgc	tccttgaata	ggatttatag	gacttgcacc	angagctttg	420
ggccattcca	ggggacattg	cttttggggg	aaaaaaagga	cccaatatgg	gtatctaaga	480
actttgaagc	atgtcgtcag	aaatcggagc	ttcanggaat	tgggaaat		528

<210> 491
 <211> 537
 <212> DNA
 <213> Homo sapiens

<400> 491						
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ctcaatgatg	aattgaacaa	tgaatctgaa	ggaaaaagga	gaaagaaaac	acaagtgtgc	180
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gcaggttgat	atgatttggc	tgcttcccc	cccaaattctt	accttgactt	gtagtcccca	300
taatccccac	atgtgggggg	aggaagcctt	tangaggtga	tttaatcatg	gggtgggttac	360
ccgcattgctg	ttctcatgat	aatgagtgag	ttctcacaa	atttaacgtc	tttanaaagg	420
aactttttcc	ccttttactt	ggcacttctt	ttttgtgtgt	ggcattgtga	aanaangaca	480
tgggttgettc	ttcctttccc	ccttgattgg	naagttcccg	anaacctccc	cagcctt	537

<210> 492
 <211> 367
 <212> DNA
 <213> Homo sapiens

<400> 492						
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gctgaggcca	ggcatgggtg	ctcacacctg	taatcccagc	actttgggat	gccgaggcag	120
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aggctgatgt	gggagagctg	aaccctggag	gtggagattg	cagtgaagcca	agatggcgct	300
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agatctc						367

<210> 493
 <211> 189
 <212> DNA
 <213> Homo sapiens

<400> 493						
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agaactgtt						189

<210> 494
<211> 157
<212> DNA
<213> Homo sapiens

<400> 494
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cttacttatt tgtgaatttc cataacatct agtagagtgt tttccaccta attgggcgca 120
ataaatgttt attgaaaaaa taaagaaggc tatgggg 157

<210> 495
<211> 416
<212> DNA
<213> Homo sapiens

<400> 495
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agaacatatg aaacaatgtc ttcaaaacac tgaacatcag cgatggaagc aggaggcaga 120
gaaattctag gcagacaggg gcggtcccc agtgaaacag caccttcaag tcaaagtagc 180
ctgaaacctg ctgcccaga ccctggactc agtcagtaga ggagagaagc agcttgactg 240
gagagaagca acttgacttc agaggacag ctggacttca gaggaagat agcttaactt 300
cagagggacg ctctgacttc agggaagatt acctgaccat cccatcccc ttttcagctt 360
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<210> 496
<211> 395
<212> DNA
<213> Homo sapiens

<400> 496
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acaggtctcc tacttctaga ctcatgtttt tgaggagatc cgtggatcag catctctcct 120
ggtcaggacc acagaggcct tccaccgcgt gtgtgaagcc tcgttggatg ccagcttcaa 180
aagcaaaagg tatgtcaatg ttccataaag agaggatcgt gactctcccc ctgtgcaagt 240
ctggagctgg agagcactct ttctgtggga tgcagtcacc ctgaaatgaa actctcttta 300
ntagctttta cttgagaaga tncccatatg ccctacctac ttatngtnat gcnctcttat 360
attaaaaaaa aaagttgggg agtttaaaag gacca 395

<210> 497
<211> 429
<212> DNA
<213> Homo sapiens

<400> 497
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ccacctcgac ttcttaaaga actgggatta caggcacaag cctgccccac tctgcaaccc 120
ggtgtagaga ccgctacatc aaaagcacat agtaggagg aagaaaaaac ccacagagt 180
acaataatga aagtctggag gcaaataag tagaagtcta cttgaatagg tatccctccg 240
taggatagtt catcacatat tagaactaga aaggctcctg aagtttatat agtggctggg 300
ctaactctgtt agattttcaa agtccaccaa gatcagttaa acaattgctg agctaaagaa 360
aagaacttac cattcattgg agtttntttg ccatcccatg cagttattgg aaataaatat 420
ttgtatgct 429

<210> 498
<211> 345
<212> DNA
<213> Homo sapiens

<400> 498
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cccacgctca agcgattccc gtgctcagc ctgcagagta gctgggatta caggctggga 120
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ccaggetggt	ctcgaactcc	tggcctcagg	cgatctgccc	gccttggcct	cccaaagtgc	240
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agtctgtact	gtctgaaatt	aatatagaga	ctcctgcttt	ctttt		345

<210> 499
 <211> 388
 <212> DNA
 <213> Homo sapiens

<400> 499						
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aaagacgact	ccatgcttgg	ctagcaaggg	caacgggtgcc	accagcttca	tatgtcccac	180
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cctctttctt	gtgccccctt	tttaccatc	acagctatct	ccctaatac	atcttctgca	300
tgtgcttctt	ggaggacctg	agatgacact	gagccagact	gaatttttct	tttttgccat	360
aatcagaatg	gattaattaa	gaattaa				388

<210> 500
 <211> 310
 <212> DNA
 <213> Homo sapiens

<400> 500						
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ggtcttctgc						310

<210> 501
 <211> 455
 <212> DNA
 <213> Homo sapiens

<400> 501						
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accccaagtc	agatgtcctt	tataaccttg	cttttatggt	cctctgacca	gcagcattaa	120
catcaccttc	acctggggagc	tcattaggaa	tgcagaatct	cgggcctcat	ccctgatcca	180
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gagaagcact	gctgtacaac	actttgtaac	aatctctctt	gtccaagagc	ggggacgaag	300
ctagctgtga	aagctaacac	aggtctcagg	tggtcttctt	cctgcaagtg	aggggtggagg	360
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<210> 502
 <211> 397
 <212> DNA
 <213> Homo sapiens

<400> 502						
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tcagtgaac	ctctgcctcc	tgggttcaac	ggattctcct	gcctcaccct	ccttagtagc	180
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tgaccaggct	ggtcttgaac	ccctgacctc	aagtgaacca	cctgccttgg	ccttccaaag	300
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accctctatt	taatataata	caccaatta	agggttt			397

<210> 503
 <211> 443

66428674-102799

<212> DNA
<213> Homo sapiens

<400> 503
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ccacccaatg ccagcacata gtg 443

<210> 504
<211> 346
<212> DNA
<213> Homo sapiens

<400> 504
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tgggattaca cgtgtgagcc actgtgcctg gcctattcct gatgactctc cttgtctctga 300
agtctgnact gtctgaaatt aatatagaga ctctgctttt cttttg 346

<210> 505
<211> 444
<212> DNA
<213> Homo sapiens

<400> 505
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ccttatctcc cttegtgac tctcttttcg gactcagccc acctgcaccc aggtgaaata 360
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aaccangctg aactttgttt aaaa 444

<210> 506
<211> 401
<212> DNA
<213> Homo sapiens

<400> 506
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gattaaaagc tttattgctc acaaaaaaaaaa aaaggnncgn gngncaatt cagntnggac 360
ttaacnngn tgaacttgnt naaaaggggg gggccacca a 401

<210> 507
<211> 306
<212> DNA
<213> Homo sapiens

<400> 507
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catgtgggac	tgtgatttag	caaggaaaac	agccagaata	aacatgtcag	tgtctccggt	180
ttatggtggc	ttcatgtgca	gcattgtgac	ctatacctcg	gagtttttct	tataccagat	240
gaagcttggt	ctatagtctt	cacaaggaca	taacacttgt	cataagtaaa	tgttttctatt	300
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<210> 508
 <211> 224
 <212> DNA
 <213> Homo sapiens

<400> 508						
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tactgaaggg	tgaggggtgag	gacaagagaa	gggaaggtgg	tggagatgat	tattcaacag	120
tcaagactct	gctagtagac	aagacaccag	aaatccggaa	ggcctctccc	tgccccgcca	180
aaacaggaga	aaaaataaat	ttctgaaaga	ttttgatata	tttt		224

<210> 509
 <211> 318
 <212> DNA
 <213> Homo sapiens

<400> 509						
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tcagtccaag	tccacaaaga	attgaatgcc	gccacaact	atgcaaggat	gtaaatgaac	120
tattcttcac	ttgagcctcg	gaagggacca	taaccctgac	tgataactga	taatagtttt	180
gtgagatcct	gaaagcagag	gatactcaga	ctcctcattc	acagaagctg	tgagagaatt	240
catgtatatt	gttttatgtc	tctaattttg	tggtaatatt	gttatacttt	aatgggctaatt	300
aaagctacca	actcaccg					318

<210> 510
 <211> 133
 <212> DNA
 <213> Homo sapiens

<400> 510						
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caaggaaaga	ggatcatttt	gaagccggga	tatggagacc	aacctgggca	acaaagcaag	120
acctcatctc	tac					133

<210> 511
 <211> 114
 <212> DNA
 <213> Homo sapiens

<400> 511						
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aggntgggga	ttggagacca	acctgggcaa	caaaagcaag	acctcatctt	ctac	114

<210> 512
 <211> 409
 <212> DNA
 <213> Homo sapiens

<400> 512						
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caccgcngtt	caccaccatg	cccagctaatt	tttctgtatt	tttagtacna	aacgggtttt	180
caccatgttt	ggccagactg	gtctcaaaact	tctgacctta	ggnagatcnt	ggnccacctt	240
agccttccaa	agtgcctggga	tcacagtcct	tgaagccacc	gcgcctggnc	gacaacaggc	300
ttctttgaag	aacaaggggc	cttctttaaa	ttttnaacaa	antctcttgc	ctttgttaca	360
cangagtatg	gggntncaat	aaattgtttg	gntnggattt	gaaatttgc		409

<210> 513
 <211> 411
 <212> DNA
 <213> Homo sapiens

<400> 513
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 gaccacaaaa gaagtgaana nggccagttc ctgccttaac tgatgacatt accttgggac 120
 attcctcctc ctggataatg nctctgganc tccccaccaa acaccttgtg acccccactc 180
 tgcccacaan agcacaacc cctttaactg taattttcca ctacctacc aaatcctata 240
 aaactgcccc accccattt ccctttgtct actctntttt cggactcaac ccacttgcac 300
 ccaagnгааa taaacaagcc ttgttgctca canaaaataa aaaaaaangn caanaggngn 360
 cctncnnnnt gnnaatnaan catgggtnnn gttntgtnaa aagggggggg g 411

<210> 514
 <211> 165
 <212> DNA
 <213> Homo sapiens

<400> 514
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 tatagggtgc actgtggagc aaatatacca ggaggtcttg atttcctttt tctccctcac 120
 catccgataa taaatccaag tggaatgcta ggaattggtg aaaag 165

<210> 515
 <211> 461
 <212> DNA
 <213> Homo sapiens

<400> 515
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 tgccaccatg gtcattccaa gaaacaaatc tgaccacagc acttctcccc ccacaccctt 120
 cccaacacag catggactct gcaacctggg atgagggggc tctgcttcac tccagtcagt 180
 cccatggctc ccaaagtgtg gtctatggac tcctaggggt ctacaagatc cttccagagg 240
 ttttacgagg tcaaaagtat ttgataaaaa tactaagaca tttcttggct gggagccatg 300
 gttcatgcct gtaatctcag tgctttggga ggctgagggt ggaggggttg ctgaggccaa 360
 gagctcaaga caagcctggg caacatagaa agaccctgtc tctacaaaaa aaaaaaggcc 420
 agngnggcca attcagntng nacttancca ggctgaactt g 461

<210> 516
 <211> 475
 <212> DNA
 <213> Homo sapiens

<400> 516
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 aagctcctta gaatagaagt tcatgggagg aagcatccac atgtgcactc acatcttcag 120
 aacgtgctgc ctctgcccc caaacacact gacctctgcc ttttcaaagg caaaatttga 180
 tccattaatg ttccccagtg ttggtttcat aaagcgtttg gatggggcct tcttcacaaa 240
 tgaataaaaa tgagtaaagt cctcagaatc aaaggaaagc caggactggc ttccagaagc 300
 acgaggcaac ccagagagtc catctgcagc caaacatgc aacagaccca gccacagctt 360
 agaggctggc aacaagtctg cctgcaggat ctgccaagga accagatgct gttgcttcca 420
 aagcttggca tcagggcccc tgattgccat tcaacaaaga ggaaaaatag gggat 475

<210> 517
 <211> 371
 <212> DNA
 <213> Homo sapiens

<400> 517
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aacagggaaa	cttggaccca	gagacatact	cagaggaaga	acgctgtgtg	aaggcggagg	180
cagaggtcaa	ggggattcat	ctatgagcca	cagactgcca	cagactgcca	gccaaccctc	240
accagagcca	ggagagaggg	acagggcaga	gtctacctca	taccctcag	aaggagtcaa	300
cgggtgctgat	accttgattt	ctgaccttta	ccttcagaac	tgtgagacaa	taaatttcta	360
ttgtgtaagc	c					371

<210> 518
 <211> 216
 <212> DNA
 <213> Homo sapiens

<400> 518						
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gggggctgta	gcccttgaag	ccatgtgaaa	taagacctga	agtaaccgag	atgccagtgt	120
ttggccaccc	ttggctgaaa	taacatattt	acccagcaac	aaagctttcc	catccatttt	180
tatttaagag	agatttttaa	taaaatctag	taaatg			216

<210> 519
 <211> 483
 <212> DNA
 <213> Homo sapiens

<400> 519						
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tggacatgag	ctgtgtgggtg	tccccgtcct	catacctatt	ccagaaccac	actgggtccct	120
gctctcgtct	ccgaactgtc	ggaggacgga	cctgcttttg	caaggacctg	aactccctgt	180
gttggtgctt	aagattttta	cccaggcatg	aaaaggaaat	gaattctgcc	aactcatcgc	240
tgtgtctgtg	ggaacagaaa	ctcagggcac	ctattctctg	caagaaaagc	atcaattccc	300
tgtaagaaaa	gtttcccacc	tgagacaatg	acacagacca	acataaatgc	tcttttggtt	360
ttatgatttc	tgatattaga	ttttacttga	tttttttaat	tttaattttt	taaatttcgt	420
tttgagagtt	aaaagtgtta	cttcttttat	ttccagcagt	tcaaggaatt	tcagagcaat	480
ctt						483

<210> 520
 <211> 233
 <212> DNA
 <213> Homo sapiens

<400> 520						
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ggcagaacac	aggtccctca	ccccgatgcc	cacgaccact	cagtaacaac	atctaccacc	120
attcggaggc	aagacaaact	gcatgagtaa	cccagcacag	ccactcagat	gtcacttctt	180
cctgggtgaag	aagcagaacc	ctagattcac	aaaataaaca	gtcatctaca	ggc	233

<210> 521
 <211> 366
 <212> DNA
 <213> Homo sapiens

<400> 521						
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tcactgggac	ctccgcctcc	tgggttcaag	cgattctcct	gcctcagcct	cccaggtagc	120
tgggattaca	ggtgcccgcc	accatgcctg	gctagttttg	gtatatttag	tagagatgga	180
atttcaccat	gttggcaaag	ctgatctcga	actcctgacc	tctcaggtaa	tctgcccgtc	240
tcagccttcc	aaagtgctgg	gattataggc	gtgagccact	gcgcccggcc	tatcattgct	300
gtatttcaag	tacctgttta	ccttgtaggg	tctgccctac	caaattaaaa	gcttttaaagg	360
atggac						366

<210> 522
 <211> 368
 <212> DNA
 <213> Homo sapiens

<400> 522
acaaccctct cacagagcac agagcgcttc acctatgctg ctgcccggaa tccgaagaat 60
gtggagaaac agagcctgcc tccacctctt cccagctgtg ggggaccata ataatacaac 120
ttcctcctcc ccaggcttcc cagcaccac agacaacgcg caaaacacaa ttttaagggtg 180
accgacttta caaaaggcag gcacgcctac gcgatgagca ctggatctaa gcagaaacgc 240
agagccgccc aagccaggtc catcctggcc ccgctctgca cctcatgcca tgatgtaccg 300
cacaggcctt ctgaggggggt tcaaattccc tgtcaacaaa aggaaaaatt aaaggcactc 360
taatcggt 368

<210> 523
<211> 487
<212> DNA
<213> Homo sapiens

<400> 523
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caggcaggtt gaattgcccc gggcctacag aaaacctgac ctctacaag acagagacac 120
caaatgcccc ccgatggaca agcagaggac caagggttct ctggtgttca tctgtcagga 180
aacactgcaa acagctgggg agatgggaat acttgacaac cacctttcac gtccagagat 240
gaccaactag gaactgtcct ccccatcac ccacacccca gcacagtgt tactcagcca 300
aatgcctgca gggccagcag gtaacaccca tgactgaagg tggcggggca aatattacaa 360
cagggagagg tggaacaaat ttgggctcgt atgccctaga taagaggatg accaccgccc 420
aattccaact gggaaagcag gccccgtgtt gccagacctt nagaattttt cagaaaaact 480
ggaaatt 487

<210> 524
<211> 325
<212> DNA
<213> Homo sapiens

<400> 524
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gagccctnga naacagacca cttcaccaag agggcccaag gtgattngta aaaagaagac 120
cattncnca ttccttcatt ctggaccat tctaccaaag cctcaagaaa gaagaagggg 180
cctgggaaac aagcttcctt ttcccttcac caagccttca agaaaggga attcaaactn 240
ttgnccccc attncttcatt cttggggaac tttcccaatt ttcttggaac tttgggagaa 300
aaaataaaat tttcttggtt atttt 325

<210> 525
<211> 495
<212> DNA
<213> Homo sapiens

<400> 525
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gctaaggga agctttcccc taacactctc gtgattggtg tgaaaatgaa acctgctctt 120
tccagaacaa tgagaatgct acctctgccg acaacattcc catccaacta agatcaagcc 180
agattgctct tgagtcattg gtttagtaacc catgggaaga ggaagagtag ctgcagttga 240
cctataaact ctgccttgcc cttgtcccaa gctaatecct attacatccc acagactgtc 300
cctggagtca gaagtgtgcc ccagacttgt cctaattggc tagcacagt ggaagttgtc 360
caagaagtca tggatcatca agagaccttc agagaccact taattgtaca agactttatt 420
tgncaactnc taaaantnct gagtgccatg ggacaaggca aggaagatgt anttgctggg 480
caagaaaagg gagca 495

<210> 526
<211> 355
<212> DNA
<213> Homo sapiens

<400> 526
gaataaagan ctttttnnac tcnctaagt accgggattg aaccnecat caagaaattg 60
gagcnaagtt actttgtggn ttaacaaagc attaggaaat gggactctca agctctctca 120

aaaagtatca	aagaagtga	attcatcaga	ccactgtgtc	gagacaatga	gacgccagat	180
gccagattcc	ttatttgtca	tgattgtctc	cttagccctc	cctagttcct	gttttcctgc	240
tcataagtta	catttcttcc	ttgctatata	atccccta	ttcggctggg	tgaggagatg	300
gaattgagac	tgatatccca	tatccttaac	tgtagcatgc	aattaaagcc	ttctt	355

<210> 527
 <211> 521
 <212> DNA
 <213> Homo sapiens

<400> 527						
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caaagtgtga	agtctcagtc	atacagaaga	aaatgaaaag	cctgttcttc	ctcttcacag	120
gattgtgaga	agcagggatc	ttgaggtctc	aaatgcccta	ttggaggtca	ggctctggag	180
attccaagat	gaccacacaa	tccctcctcc	gtggaattca	cagttctgag	acaagacaga	240
gaccaagcag	ctccaagccg	gccccctctg	ttataaaacc	aagttccggg	ccaagtgtgg	300
tggtcacgc	ccgtaatccc	agcactttgg	gaggccgagg	tggccggatt	acctgaggtc	360
acatgttcaa	gatcatcctg	ggcaatgtgg	tgaaccccca	tctctactaa	aaatacaaaa	420
antaactggg	cgccgggggtg	catgcctttt	gatgccagct	actcgggaag	tctgaaggca	480
aggaagaatc	gcnttgaacc	ccgggaagtg	gaaggttgca	a		521

<210> 528
 <211> 510
 <212> DNA
 <213> Homo sapiens

<400> 528						
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agatgaggaa	ggataaatgt	gaagttgtgg	actgttttaa	attccacctg	accattctgc	120
tttctgagc	aacctaccca	cgccaattta	gtactggctt	tcttcagagc	attaggacaa	180
tgggattctg	tctacagctg	tgccatgaac	ggactctgat	tccttaggca	aagaatctct	240
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gttttggtca	cctgggtaaag	aactagattt	cacatgaatg	caacataatc	agtactatcc	360
ttagctattg	atgacataat	taaatgggac	attcngggca	ttgtccggag	catgctgaca	420
gaagcattat	attttcttaa	gaaaacttaa	tggngccctc	atttgaccac	tttttancat	480
gttccaaacc	ttccanacat	tgggatttaa				510

<210> 529
 <211> 504
 <212> DNA
 <213> Homo sapiens

<400> 529						
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tttctcccgt	gctggataat	tcccgccttt	gaacatcata	ctccaagttc	ttcagctctg	120
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cataaggatt	tgaatatatg	ccta				504

<210> 530
 <211> 513
 <212> DNA
 <213> Homo sapiens

<400> 530						
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tctggcaa	ggactatgta	ccagcagcac	gatataccac	ttcatgccta	gcacctacaa	120
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aaaccaggac	attcaccaac	atattttgtc	aatgacaca	gcaagaaggc	ccttaccaga	240
tgccagtcct	ttggtcttgg	acttcccagc	ctccagaatg	gatctgagtc	tttgttttct	300
gctcaacaag	ctgctgagca	gcaatcccag	ccccagggcc	cagagcacct	tcctctggga	360
gtccagcctc	angactgtgc	tctgctgccc	cctactgcac	angcctcaaa	accaccacc	420
tcaacttctg	ggtcaagcac	agtcaagaag	caaggtaaga	ngctgngctt	cactggatga	480
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<210> 531
 <211> 501
 <212> DNA
 <213> Homo sapiens

<400> 531						
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aaaaagacac	ttgcacatgc	atgtttatag	cagcacagtt	cacaattgca	aaaatatgga	180
accagcctaa	atgcccata	gccaacaagt	ggataaagaa	aatgtagtat	acattcacca	240
tggataacta	ctcagccata	aaaaggaata	aaataatggc	atgtgcagca	acctggatgg	300
agttggagac	cactatttcta	agtgaagtaa	ctcaggaatg	gaaacccaaa	tatcatatgg	360
gagctaagct	atgaggatgc	aaagggataa	gaacgggata	atgaaccttg	gggacttaaa	420
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tggggtgcca	ccaaatcttc	a				501

<210> 532
 <211> 500
 <212> DNA
 <213> Homo sapiens

<400> 532						
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gaagaatttc	taaaatcctc	atatgaaatg	agtaaaatta	aggataaatg	acactggaaa	180
accaaaatgg	cttccatata	tttccaaatg	ctgctgctga	tttgttcaca	tagaagccta	240
ttcatcatcc	tgcaagatga	agttggatat	ctttcaccgt	ctttttgaag	tcatcatcag	300
ttttctcttc	ctaccccag	gcatgagttt	tgtatcactt	acatttatgc	tccacaatgg	360
gaatattgat	ttggcccaaa	taaagacatt	caacaaattc	ttaatgagtg	gatcaatgga	420
agattnctgc	caacccaaat	ccanggnaat	ccttgagttg	cacagtggan	tggcattctc	480
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<210> 533
 <211> 375
 <212> DNA
 <213> Homo sapiens

<400> 533						
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ccaacaaaaa	tttgtcgaac	ggatgaacga	aatgaaggaa	cgtgagaggt	acacaggaac	120
cacaatcata	taaggcaaaa	cttgccatgt	ttggagtggga	gcagagcttg	gaaggcccgt	180
acaaataagg	gcatgtaaca	cccttcacga	cagcaaggat	tttaaatagga	ngatccctaa	240
atggccccga	aagaacttca	cccttggnata	ggaaggcttc	aaccatttcc	cccaccctta	300
accttttttt	aaaagganta	caaacccaaat	tccaaaaaact	tttaccaaaa	ccttngnaaa	360
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<210> 534
 <211> 599
 <212> DNA
 <213> Homo sapiens

<400> 534						
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cgtgcaccac	anatnggtgg	tttttaaaac	caccaaggaa	attgggggtg	ttggaaaatt	120
ggaaaagnaa	gccaaagggg	cctttttatt	ttggaaaatt	ggaaggggaa	aaaccaaggt	180

nggaaggcct	tcccgcgggg	attttaattc	cgganaaaag	nggggtccac	cttggggatt	240
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gnaccaattc	ccaccccg	gaatttnggg	ggaagaccaa	aaaaaatagn	ttggnttggc	360
caatttttgg	gaccaaaaac	cggtttaacc	tttccaaggg	aaaaggaaat	tttaattggg	420
tttttgcccc	caacccccaa	ttnaatttgg	gaattttttna	attccnaaag	gnccnccaac	480
cccaaattgg	ggcccttttt	aanttcccc	ccctttgggt	tgcccaanaa	ggggaaaatt	540
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<210> 535
 <211> 381
 <212> DNA
 <213> Homo sapiens

<400> 535						
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cccttgccac	cattggaaag	gaaagcccc	attccttggt	tgggggtagn	ggaaggaagg	120
aagggtggat	ggccccaacc	accaccacgn	aaggaaaaaa	aaggaaaaac	cgaaggaag	180
gaaggaaana	aggccacgga	aggaaggacc	acgcaaggac	cagnaaggaa	ggaaggccgg	240
aaggccattt	tcttggaaaa	gggcgccaag	gccttcccc	cttttctccc	ccttgggttg	300
ccttttcccc	aagaggttcc	ccttgggttg	ccttttggcc	ccaaaattaa	aaaaccttgg	360
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<210> 536
 <211> 630
 <212> DNA
 <213> Homo sapiens

<400> 536						
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tggaaaggat	tcttgggnaa	ccttggaaag	gatagcccat	tttccattac	caaggcncca	120
ttccttttaa	ccccctnaaa	aaaggggaaa	aaaggccctnt	tttggaaagg	ggggcccana	180
ttggaccagg	aaggggattaa	ccatnaagna	aaagttttgg	ggaaaattct	tgccaaattg	240
gaaaagcctt	ggggattttt	taagggaagn	ggcgttttac	ccccacacc	tnggaaaagg	300
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ttggaaaagg	tggaccttgg	aaaaaaaaat	tccaagcaa	aattttttcc	aagggaatta	420
aaattcttaa	ttctttaacc	tttttaaaaa	accaatnngt	tttttaaaaa	agggttaattg	480
gggttttttt	gggtgttttt	ttgggccaag	gnaacctttt	tttttttttg	ccaatttaac	540
ccttttttaa	ttttttttcc	tttaacccaa	tttggggggn	gttttttnaaa	aaaaatttcc	600
cgggaaccct	tnggggtttt	tttttttttt				630

<210> 537
 <211> 258
 <212> DNA
 <213> Homo sapiens

<400> 537						
agtgcctgtt	cctgcctgct	cggtgactga	gctgatctct	ctaggaatga	cctgtgtgct	60
gatcaagccg	acacgtctct	ttgcttcccg	acgtcctgat	atggcagcaa	agggtggtag	120
aatgaagtca	ttcctgcaaa	agaagctgtg	agaggaaata	cagatgcagt	ggctgaatat	180
gaaagtgtt	atgttcccaa	aggaagaaaa	tgctaaatct	caattagagg	ttggaagaaa	240
taatgacgca	gtcttttt					258

<210> 538
 <211> 758
 <212> DNA
 <213> Homo sapiens

<400> 538						
ggacgttctt	gggggggaag	cctacccttg	gccatttaaa	aggttcaagn	aaaaccttgg	60
aaggaaattc	cttttttgg	taaaaaaaaa	atgggggaag	ggaaaaggac	cccaattccc	120
atttttctt	ccaaaccaat	tttgggaaaa	ccccaathtt	gggggatttn	cccacaattt	180
aagggaaaaa	aaatttggtt	tanaaaagg	ggccccacaa	ggaaccccc	ncgggggaat	240

tataaggggg	aaaaggggga	aaatTTTTTT	tentttcccc	tttnggaccc	cncgcccna	300
aaaaaggaaa	cctggggagt	tentttttcg	gcctttngtt	gcccaaaagn	cccaancctt	360
ggggganaaa	naaaaattgg	ggggacccgn	ttaacccttt	tttttggttg	ctttggaacc	420
ctttacccaa	acccaatttt	ttctanaagg	gaaaanggga	agggggtgnc	cccnccttc	480
ctttttccat	ttccaaattg	ggtggggggg	tggggaagg	aaanattttt	ccaatttggg	540
gggggggggg	ggggggccct	tttcnngnaa	aaaaaaaatt	gnggaaaagg	gaaaaaagg	600
nccnttttta	atttggggcc	ccnctttttg	ggcncccccc	caaaaaaaaa	aggnaaaaaa	660
ttaaatttgg	gncccnnttt	tttnccnccg	ggaaaaaaa	gggnaaaaaa	ggnaaatttt	720
aaannngccc	ttngggggcc	tttggtttcc	cccttggg			758

<210> 539

<211> 240

<212> DNA

<213> Homo sapiens

<400> 539

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caggatggca	gagcagttag	ctggaaggag	tctggctcct	tgagaaggat	ggagcccca	120
caccacaagt	cccggactgn	ctgctttact	attcagcctt	aacaaagaag	gaaatcctgc	180
cattggcaac	aatgtggatg	aacctggagg	acactgtgct	aaataaaaata	agccaaacac	240

<210> 540

<211> 516

<212> DNA

<213> Homo sapiens

<400> 540

aggttncaga	aactggaagn	gnctctctcn	cacctncaan	tggcnnggna	nnncnagaag	60
ggggaaattn	cannacacaa	gaactctcgc	tggttgggat	cttcagaaat	cgttctcctt	120
ggntcntcaa	acgnaggac	tactatgctc	gccacccatc	caaatcgctt	gcgcgtaaga	180
gggtaatttc	ctagagcgta	agctnancca	ttnancattg	gctacacacc	acaaancgcc	240
acccggnggg	gtgatanaat	tttttggnc	attaanattg	gacttngggg	aggaatgnnc	300
anctagctct	tttacaatta	aaaattgggt	ttaggacctc	caaatgggcg	tgaaagtaaa	360
tatanaaaaa	cgttggcctt	ggggggggcat	actaaaaaat	ttgccctttc	gcaatctcat	420
aggaagacta	tcgagccccc	ntntacgcaa	gnaactnttn	gcaaangggg	caatttaaag	480
acaccaacgg	cgaccaattt	ttgggaaggc	cccctc			516

<210> 541

<211> 271

<212> DNA

<213> Homo sapiens

<400> 541

ccaagaagcc	ttaattaaca	tctgttaaga	actagaagat	gcacccact	ctttactttt	60
tattccta	tctcatccat	aactgaaaag	gttaacattt	caaatgggat	tacagaatag	120
tgatgtcact	ttcctatatt	catataccaa	gtcaatgttt	aaaaatagct	tatgttcagg	180
agaatggcgt	gaacccggga	ggtggagctt	gcagtgagct	gagatcgac	cactgcactc	240
cagcctgggc	gacagagcga	gactccatct	c			271

<210> 542

<211> 331

<212> DNA

<213> Homo sapiens

<400> 542

ctggtttgcc	atcccccggt	cagcatgaac	aacagtaacc	atcttgtaaa	cagtggcaat	60
gtgggctatg	catcttacct	gcttgagcaa	gagaagaaca	aaggatatct	acctggacag	120
gtgagaattt	atatcattga	aagcttcac	ttgattcact	gagtgtcatc	attcatgctg	180
cattcagaag	aggtgattca	aatctccaga	ataaagtgtc	atcatcaatc	tcacatattg	240
gtatgctcga	atagacagca	tttaccatcc	tcctaatgt	ggaaagaaaa	ataaaaaatg	300
agtactaacc	atttgctttt	tgtgttaaaa	a			331

<210> 543
 <211> 111
 <212> DNA
 <213> Homo sapiens

<400> 543
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 tcagggatac tggcctgtga gtttcagcac cgactttctg gaactgtaaa g 111

<210> 544
 <211> 378
 <212> DNA
 <213> Homo sapiens

<400> 544
 ccaattactt ctgactttca agactcttgt atttcactgg cttagggaaa atcaagctaa 60
 gccctaagt atggttggat catccatcca gttctttgct tcctctagct gatataccttc 120
 tttgctgtac tatatgggaa aagcaagaaa tattgtgaca ccaaaaggga ggagttttgc 180
 tcttgtgtgt ccagctggag tngcaatggg cngcngatac tcagnntcac ntgcaacctt 240
 ctgcctccct ggggtttcaa gtgatttctc ctgccttacc ctccctgnag ttaagcctgg 300
 gggaattaac aggggccacc cttgccccacc caccgcccc cgggctttaa attttttttt 360
 ggcaattttt ttttaaga 378

<210> 545
 <211> 110
 <212> DNA
 <213> Homo sapiens

<400> 545
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 actaacatgt gtttcctacc gttaaataaa cattatagga ggcgcattat 110

<210> 546
 <211> 70
 <212> DNA
 <213> Homo sapiens

<400> 546
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 aacgctaagg 70

<210> 547
 <211> 181
 <212> DNA
 <213> Homo sapiens

<400> 547
 agagcagaga aggggagaag agaagcatgc agctgaacac cggagagaag tttgactcca 60
 gagggatggc ttgatgggtg gacttcagga gaagaatacc ttctgctcc atcccccttc 120
 cagctcccct tcccactgag agccacttcc attggcaata aaatcctcct cagtaaccac 180
 c 181

<210> 548
 <211> 342
 <212> DNA
 <213> Homo sapiens

<400> 548
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 gccatcgcat cccccgtgac ttgcacgtat accgcccaga tggcctgaag taactgaaga 120
 atcacaaaat aagtgaatat gccctgcccc accttaactg atgacattcc accacaaaag 180
 aagtgtaaat ggccagtcct tgccttagct gatgacatta tcttgtgaga gtccttttcc 240

tgggcttcat	cctgggtcaa	aaaagcaccc	ccactggagc	atctttgcga	nccccacttc	300
tggcccgnc	ganaacaaac	ccccctttt	actggaaatt	tc		342

<210> 549
 <211> 267
 <212> DNA
 <213> Homo sapiens

<400> 549						
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aaaaagg	accttttaa	aaggccttt	ggaattttt	ccccaaccc	ggaaaaaa	120
gccaaggt	ccaaaaggn	attggccca	ggggggggg	anggcaaa	gnggttgant	180
ttttgggg	gnaaaaacc	ttttaacc	caaccttgg	ccccccctt	ggcccaaaa	240
aaaatta	nggtttccc	cttcggg				267

<210> 550
 <211> 331
 <212> DNA
 <213> Homo sapiens

<400> 550						
agtttcg	ttgttgcca	ggctggagt	caatggcacc	atctcggct	accacaacct	60
ccacctccc	agttcaagc	atttcctcc	cttagtagag	atgggggtt	accatgttg	120
acaggcttg	ctcaaactc	tgacctcat	atccgcctg	ctcggcctc	caaagtgtg	180
ggattacag	catgagccac	catgccccg	ctatctagca	ccttttaaaa	gtctgaatg	240
gaaacattt	ccacctatt	cctctaagg	tggccaccta	tgagacttca	tctacattaa	300
taaaactaca	tacaatttat	ctacataata	a			331

<210> 551
 <211> 330
 <212> DNA
 <213> Homo sapiens

<400> 551						
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attcaaata	gaggtggaag	aggaagtgt	ggagtaatta	ctggattaag	atcactgaaa	120
gacaagatt	tctttaagga	aacagaagac	tgagaagaaa	agaagcttg	tcaaggtcac	180
atagagctg	aatttaaatt	cagatctatt	atactcttaa	ggactgtgga	aggcttttag	240
agcaaaatc	gatccagaga	ctgtggatgc	tggaggagcc	gtcaaggctg	gggaaagtaa	300
acatgcact	gtgttcgcaa	tcaacagaaa				330

<210> 552
 <211> 330
 <212> DNA
 <213> Homo sapiens

<400> 552						
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ctacagtcca	ttactcacag	tgccagcaca	tgtttcctta	aaaagcttca	tcaccatcct	120
cctgcaatgc	gaccttcacc	ggctccccgt	tgccctgcca	ggaggataaa	gtccaagtgc	180
tcctgtggaa	agaagaccct	tcacacgcta	gtcccagcct	gtcttcagcc	cagcccgtg	240
tgtttccttt	cctgccttat	cctaagacat	ccttaccttt	caatcacact	cacttttccg	300
aagcattttt	gaaggatttg	agggagttct				330

<210> 553
 <211> 338
 <212> DNA
 <213> Homo sapiens

<400> 553						
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ttccgacaat	agttgttgtg	acctctttgc	ggcaagaaca	gtgatagaac	agacattatc	120

atcaggagaa	tcagctcgta	aaagccacnt	tcttggcaca	tcaaaggaaa	acctggactt	180
tgaattctct	gtgtgatccc	aagtaccaga	acagccgccc	agcaggggct	ctggaaatgt	240
gccctgaaag	aactcagaca	acaggagacc	ctccttcagc	ttncagggct	tgctggccat	300
ttgcacacag	aagggagcag	ccttgtggtt	tcaaaggg			338

<210> 554
 <211> 237
 <212> DNA
 <213> Homo sapiens

<400> 554						
gaagctgtca	aaaatgtttg	aaagtcactg	cacaaaagaa	gagtcaccac	tggtcagttt	60
tgcagtactg	gctaaagcat	tcagatgccc	caagagtcaa	aaacacaata	acgaaatagt	120
gagactccga	ctcaaacaac	aacaacaaca	acaactctca	tctttttgcc	tataaggaat	180
tattcttggc	ctctgttgta	caacttcaag	taaaaggacc	taacctactt	agaaggg	237

<210> 555
 <211> 331
 <212> DNA
 <213> Homo sapiens

<400> 555						
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tggttgaaga	aacattgtcc	gaatcagtat	cagatctaca	gtgagtcatt	caaacagcat	120
gacataactg	ggcgagccct	gctgagactt	actgacaaaa	agctcgagcg	aatggggatt	180
gcccaggaga	acctccggca	gcacatctta	caacagggtgc	tccagctgaa	gggtgcgagaa	240
gaagtcagaa	atctacagtt	actcacacaa	gcattattct	gaggggttct	tccattaaac	300
accgntagc	cnttccaagc	tgcttgtcct	g			331

<210> 556
 <211> 218
 <212> DNA
 <213> Homo sapiens

<400> 556						
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gaagagcggg	agatcgctgg	acactcgccg	ttggcatcat	gtgggggtgct	ccatggcttc	120
caattggcca	aattcttttc	agtgttaaaa	tgctgtaaaa	tataaaacgt	atgtaatttc	180
ttgacaaaaa	ataatactat	ttcagggttg	actctttt			218

<210> 557
 <211> 330
 <212> DNA
 <213> Homo sapiens

<400> 557						
gccaaagaac	anggaggaag	actgagaaag	aacgtgaagg	ccatctcttt	cccacaggcc	60
cttcgcagga	ggctccggac	tgctccccgc	actgcgagat	gcctctgtga	gccgaggagc	120
tgtaaaacac	gcagcgggcg	gcacatggga	tgccggatgc	caagctgtgt	gcatgggaca	180
gactgagcaa	cccaaaggag	cctgctgtcc	catcaagcac	gtggcagtcg	gggcatccca	240
tggaacaatg	aaccgtgcat	tgtgagtcca	tgtgatgaac	cagcgcatcg	ggagccacnt	300
gggtccttcc	cttcacccgt	catcagtcag				330

<210> 558
 <211> 172
 <212> DNA
 <213> Homo sapiens

<400> 558						
gtggcctcag	acagaatgac	aggcaccagt	cccggacagg	acacgcacaa	cacaaaagct	60
atgggaggta	gaatcaaaag	taccagagcc	caagagccgt	ggaagatggc	tctccgattg	120
ccttcagaca	agcaccctta	cctgaatgct	tgcagaataa	acagactgcc	tg	172

<210> 559
 <211> 336
 <212> DNA
 <213> Homo sapiens

<400> 559
 aggagaatac aacgttttag atggatgagt aatctgctga agatcactga atgaatgtgc 60
 aaggaaacca taacataaat ccatgtctct ttctactact caattttttc ctgttactaa 120
 tatcattttt aaaaataata tttatggggt tacaatttat gtttaataag ctttaccat 180
 ttaccacgt tatgacccaa caagaaagcc ttcaccagat gcggccactt gatgttgaac 240
 ttcccagcct ctagaaccac aaggtcagca taatattttt caaactcatg catgctcctg 300
 catatatcaa tagcctcatt tggtttttat tgcattg 336

<210> 560
 <211> 332
 <212> DNA
 <213> Homo sapiens

<400> 560
 ccaacttcag gactgattga tcatgacttc tataaaggag caggcagcaa ttagcaggct 60
 ctttaagttt ttacaggagt gggacaacgc tggcaaagtc gcaaggagtc acatcctcga 120
 caagttcatt gaaaccaacc aaggcaagac tgcccctgaa ctggagcagg agttttccca 180
 gggagccagt ttgttccttg tacgcttgac caccctcgctt agaactcactg acttacacct 240
 atggtcccag ctgcttgagg ggctgaggag ggaggatcac ttgggccttg gagtttgaag 300
 cttgcagtga gctatgatca caccgctgtg ta 332

<210> 561
 <211> 62
 <212> DNA
 <213> Homo sapiens

<400> 561
 aaatcatgcc caagttcaaa caacgaagac ggaagctaaa agccaaagcc gaaagattat 60
 tc 62

<210> 562
 <211> 332
 <212> DNA
 <213> Homo sapiens

<400> 562
 accagctaga ggtttatcaa ttttgggacg tgccctccatc tcatctcctc agactcgggtg 60
 tttcaacaat ggctttgctc ctcagtcacc tctctctgga aggatccctc aatggatgag 120
 tacacctgcc tctggatggc acatgaagcg tgggggcaga atcaatccac attgctgtct 180
 gaatgtagta ccaactgctag aagcagggtca atcaacaacc aggcctacag gaggagggag 240
 gaagaagaga ggctgctcta tgtcctcctt ttgccccttc ccacacacag taagatgaag 300
 atctcttttc ttgcacccct cagtctcctt tg 332

<210> 563
 <211> 308
 <212> DNA
 <213> Homo sapiens

<400> 563
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 cgcattccct cctctccatn cttgatgccag gactcttccc ggggtgtgac tgcttatcac 120
 ncgtccctc tgaggacagc tctgaagacc agcttctctg acttgactg tgagaccagt 180
 ggctgggtctg tttccgttga gtnggggngc cctctttgac tngaccacan tttccttggg 240
 cccattttctt tttcccttc cccctttgaa gaaagtctac ttggnccctn ggggggcagg 300
 ggggggtta 332

<210> 564

<211> 354
 <212> DNA
 <213> Homo sapiens

<400> 564
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 caatgggaga aagtgaagga ctccagagcc cctggagatg gaggatggag gagcctgggt 120
 tcttgnatcc tcacatggaa tgccagccac aaattggcat ttggactcct atatggacaa 180
 ggaataaatt taaatcctat taaggctggg tgcagtggct catggctgta atcctactgc 240
 ccttagaaga ccaaaagcag ggaagatcac ttgaggccca ggagtttcaa aaaccaagcc 300
 ttggaccaac attaatgtag accccgtctc tacctaaata aataaataaa tcta 354

<210> 565
 <211> 350
 <212> DNA
 <213> Homo sapiens

<400> 565
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 gctcctctgc atgctccact gtctaagctc tgctctgcat ctgccgtgat tcttcttcca 120
 aacagaaaac accgtctttc tttttgacta catctgtcct cagagatggg gctgatggat 180
 ccatttataa tttatgtgaa tttaaacctt tgcaattttt acatggaata aaaggacctt 240
 tttnttggaa agaaaatgct gaacaagagc tganaacctg ggggccatct taangcaggg 300
 ggttccttcc ttacaccctt gctgtcanaa agccanctgg ttggccattt 350

<210> 566
 <211> 193
 <212> DNA
 <213> Homo sapiens

<400> 566
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 attnanacgc tcctttactc tttnagacat aagtgtntcn attgntaatn aanttntttt 120
 tccaggcccc nccccngtct cattnttgca aaatggactg ngcctengac ntcctcnaa 180
 aatgttcaac ctt 193

<210> 567
 <211> 310
 <212> DNA
 <213> Homo sapiens

<400> 567
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 ggaaggaaag cctctgccct tcagacttct tcatccctga gttgagtttc atggaaaagc 120
 agcctctggg agtaacaagt acagatgcag tttcaccatg ttagccagga tggctcttgat 180
 ctctgacct tgtgatccac ctgcctcggc ctcccagagt tctgagatga cagggtgtgag 240
 ccactgcacc tggccaataa ttttatTTTT aaacatgtaa gattctatct ctgaataatt 300
 agttaaacct 310

<210> 568
 <211> 317
 <212> DNA
 <213> Homo sapiens

<400> 568
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 acactatctc caaggcaaat ggattcccca ggcagatgag aagatcacat tactcatggt 120
 caaaatatta cccagttgc acaagtattg tggaaattttg tgcattngnn ggnagacaac 180
 tggttcttta tcttcttcca atgtcaaaag taaatttggg gattataact ttggcaatat 240
 attttaagca gaattagtat attatgtaac atgtttttatg aacatncctt attaaaattt 300
 tgggttatgg actcctt 317

<210> 569
 <211> 338
 <212> DNA
 <213> Homo sapiens

<400> 569
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 cacagaactt caccattggg ctatgcatag tgctgcttta ttggtaaaaac aggaagatcc 120
 aatttacacc taaccctatt tcatgttttg ccaacaatgt atccatggaa ggacccttca 180
 tgtgagattc caactgcatt ctaaactc agaggacatt ctgcatgccc tggggtgtaa 240
 gcaactgcat gagatgtaaa tcccttgtga agaacagcaa gtaggcagct tnaccttggg 300
 cttcaccacc ttcatgaaga ctctcttgac caacgcct 338

<210> 570
 <211> 464
 <212> DNA
 <213> Homo sapiens

<400> 570
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 tgatgtcctt caccctccggg taaggcggac agtgcctaag acaagaaaat ttccggggaa 120
 anaactngcc caaaaatngt tacaaaggac ccaccacccg gtatgntcat cttttgtatt 180
 ttggggattt canaaaannc atttttttgg ntgnngggg gcnaaagnac aaaacnttgg 240
 gcttttttgg gcnantgaat tttttattgg aatttcccc ntggggattt tatttgcca 300
 naaaaggaaa aaaaaattgg aaanccccc aanaaaccat tntgaanctt ttggccaaag 360
 aaanaattng ggcccntngt tttttngat ggaaangna aaaaaaggg accccttncc 420
 aatgtaaaaa aaggcccaan ccccgaaaaa ggggggaacc cgcc 464

<210> 571
 <211> 358
 <212> DNA
 <213> Homo sapiens

<400> 571
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 cctcctgggt tcaagcgatt atcctgcctc agccgcccc gtatctggga ttacagcagg 120
 tacctgctac ttctcatgct tcattgtaag aacaagatct gggctccagct caacaaatac 180
 ttgaacaaag aatgaagtaa gcagaccagt gttaaagagaa tgcctcatac aaagttcaga 240
 ggcccaggag atagaagctg gtaaaaccat tcaccaagaa gccaaagccg ggaaaaaaag 300
 ganggggtgcc ccaccaggga aatgactgca tgcaaacaga gcttggttat agtggggc 358

<210> 572
 <211> 348
 <212> DNA
 <213> Homo sapiens

<400> 572
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 gactaacatc caaaggcata gaaattgaca gcnaatacnc aataaaacag gaactcccag 120
 atcgaatgcc cacgtggaaa agtcatngag agagaaactg actcaaagca tccgctgtgt 180
 tccggggcca tttgnngggg caggatgggg gttaccgagg agtggtnttg ggccatgagc 240
 acgggcgngc gggatgaccc cactcccaa ctgggggtgcc ttcaaaaact ttagtaaac 300
 tcctgtgac tncgcttcct cngaaacacn gtggnctgag gaggattc 348

<210> 573
 <211> 360
 <212> DNA
 <213> Homo sapiens

<400> 573
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ggacatatga	aggggaacaa	cacactctgg	ggcctgtgag	gtgcagggag	agcatcaaga	180
agaacagctg	gtgggtgctg	ggcttaatac	ctgggtgatg	ggttgatctt	gtgcggcaaa	240
ccacatggc	acacatttac	ctatgtaacn	aaccttgaca	tcctgcacat	tgtacccng	300
gactttaaaa	ataaaagttg	gncaaaaaga	aaaccttaac	ttacttttaa	aaaaaaaggt	360

<210> 574
 <211> 314
 <212> DNA
 <213> Homo sapiens

<400> 574						
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tcttcacaga	gaaagcaagc	ccagcccatc	cccacagctg	gtcccttggg	gcccattctg	120
aaaggctgga	cccatcctga	cctgtccctg	ccccaggac	tgcctgggtga	gggatggctt	180
accaacactg	tgactcagtc	cttccaacat	gccaacagc	tcaattctgg	gatattcctt	240
acaggaatta	atgagagcac	attgccggta	atgttggcat	taataaaata	acatttaaata	300
ttaaaaattc	cttt					314

<210> 575
 <211> 363
 <212> DNA
 <213> Homo sapiens

<400> 575						
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cggccccagt	ctcccgctgt	gtgtcacccc	gtacttcag	aaccagcctc	atcttgcccc	180
tcagaggtag	ctgtccagc	ctggtgacac	tcctccgaa	caagttctaa	tctcacccctc	240
ccatttgacc	cccaagccc	aggggtacag	gcttcctgat	accttaaggg	cctccctttc	300
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gtg						363

<210> 576
 <211> 278
 <212> DNA
 <213> Homo sapiens

<400> 576						
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tttgacctga	gtgaaaaata	aactgcaatc	attatgttaa	aacacttgca	tatttggggg	180
gattttttgt	ttatcttgtg	aaaatgcnca	ttaacctcta	ttgtcataat	aaaaatcctt	240
aaagttgggtg	ctaaaaataa	acgcaatttt	gaaaattc			278

<210> 577
 <211> 85
 <212> DNA
 <213> Homo sapiens

<400> 577						
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ttaaaattta	tgaaatgttt	tgcgt				85

<210> 578
 <211> 320
 <212> DNA
 <213> Homo sapiens

<400> 578						
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ccaatcaac	tacggcaggc	cagatggcac	tttcacttct	acgggctccc	tctgtgggtg	120
gtaaacgtgc	agagaagact	ggaacactgt	cttcaggag	cctaggttac	actgatccca	180

gcacagcact	tcctaccaag	taaagatcaa	ttttaaaaaat	gaatgaagtc	aactgaaaaa	240
gctcccaatg	gccaaagctg	gaacaatttg	agcaaagaat	aaaggatatgn	tnggnttnta	300
ncccagaaga	caaaataaat					320

<210> 579
 <211> 652
 <212> DNA
 <213> Homo sapiens

<400> 579						
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ngaacaactt	ccctaattct	ngcccatccc	cttcaagcca	atngcttaat	ccaacttcaa	120
agccttttct	tccaacaaa	acaattcccc	cttngcttca	aagccaaaac	ttaactgggg	180
tttttngtgg	ggggccaaca	accaagaaaa	gngtggcccc	caaaagcccc	ccctngttgg	240
cgggaagnaaa	aaaggggttc	cttggggcaa	gccccaaaag	ttggcctttt	ttggaccaat	300
tggccccaag	tnggttcccc	cttgggggaat	gggggggaag	aataaccccc	aaacccacca	360
aattcccaac	ccccccaagn	gggaaggggt	tgggggtaac	caaaatttaa	ccaaaaccct	420
tgggggggaa	ggaaccttgg	gggggggaat	tggaaacccc	ggggtttttc	ctttcccctt	480
ttttcccng	ggnaaaggcc	nttttttccc	cngggnaaaa	nttggggggc	caatttgggt	540
tnggggggcn	tttttttttc	ccccttgggn	gggggaangg	gggaaaaaaa	cccttggggg	600
gggggggaaa	aagnaaaaaa	cccccaang	gggggggggg	aaggaggatt	gg	652

<210> 580
 <211> 314
 <212> DNA
 <213> Homo sapiens

<400> 580						
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acagaaatac	cttgccccct	ggttgctttt	ctgtgctaga	atcactccag	acttcaatca	120
tcagcctgct	acaagccact	cccaagcctg	ggacttaatc	gccagcagaa	agcacgtcca	180
cacgtcctct	gttacctcct	ctagatgcta	aggaatgtga	ctccaagaag	attcaaatag	240
caggatccta	cagcgttctg	ccatcatctt	attcaacaaa	agtcttttgg	tttnacaaan	300
accattcat	attt					314

<210> 581
 <211> 328
 <212> DNA
 <213> Homo sapiens

<400> 581						
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gaagctgttg	gggccatgct	gttggggcca	gagcctacgt	atgcaactgc	tccagtgtgc	120
atggggagaa	agcaaccac	atcgactgct	gcaatgagac	agctgctttt	cctgtgtttg	180
ggcaccgaat	catctcatca	gccccactgt	gcaagttttc	tcctctccat	ctcaaagatg	240
tgggcaccga	gcctcccatg	gaataagtaa	tttccctggg	gtcacacaac	ttanctaagn	300
ggcagcccct	nggatccaaa	ttgtaaag				328

<210> 582
 <211> 324
 <212> DNA
 <213> Homo sapiens

<400> 582						
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gagaacttga	aataacgggc	ccactgcctc	tgtctccacga	ggatccatgc	catcatggca	180
ctttgggagg	cctgtcacga	gttacacagg	cctaggctgc	ccacacccca	gctcagcaga	240
aaaagagaa	tgcaatccaa	gtcacacaga	tcctgcctgg	gcntttccgc	aaaaagcctg	300
gagagtctga	ccagcaaa	aaca				324

<210> 583

<211> 238
 <212> DNA
 <213> Homo sapiens

<400> 583
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 ggaaaaagtt atctgagggtc aatctgcaat ggaatatgtt cctttcctgc ctgcttagat 120
 gtcttctgat agtcacgaat tgatttgtag tcatacttct gtaatatcta tatgcatgtg 180
 aagcactgtc tgatgttaaa atataaacat catctatagt aataaactga gacactgc 238

<210> 584
 <211> 427
 <212> DNA
 <213> Homo sapiens

<400> 584
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 ctgaagtcac aggtaatgtt atttaggaaa agtatctctg caatacacat actcttttag 120
 tacaggtagt aggagctagt taggcttaga gcagtcctac ctcttagcca tcagtacacc 180
 aaccaagaac catctttacc ataggaagag gaaagaaaga gccaaagagng naagcctagt 240
 ctagagtcta gagtaggatt aatntaccaa gccatagggg attttattcc tagtagccac 300
 caagttttcc tccaaaaagg aatccaagt ttagngtngm ggaaaaggaa atttcaaatt 360
 ttgnggctta ttttgcccca tttggtaaatt tccaaccacc ttttttcccc aattttaatt 420
 ctccaat 427

<210> 585
 <211> 459
 <212> DNA
 <213> Homo sapiens

<400> 585
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 gctcagcacc ccatggagaa ggtgaagccc ataatagaaca cactgccctg gccacttact 120
 tctccaacc aaagaagccc tcactctccg gccctagacc atttcggag accagcttgt 180
 gacagagcca caacctccg tcactctgtc agctatctgc agttcctcct ttttcccttc 240
 ctctctcccc tcataaacia tgactgttga tgtttccact agctacagat gctgatgcca 300
 agattagctt tggatcaagat gatattctcc atcctccaaa acaatgacca aaatgtttta 360
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 ctcatTTTTg ntttgngngg ggataggttaa tagcaaaaac 459

<210> 586
 <211> 433
 <212> DNA
 <213> Homo sapiens

<400> 586
 gagatgggga aacgaatcca gaggttaatg atatgtccac cataactcaa ctatcaagat 60
 cctcaagtca gtgctctttc cttcatgtcc tcaggagtgc tccagggaca ctgtaaagat 120
 gagaaggagg ttgcacggtc tgaatgtttg tgtccttcca aaattcacat gtttaacactg 180
 aatcctcaat gtgatagtgt taagaggtgg ggccgctggg aagggattag atcatgagga 240
 cagagcccta atgactggga ttagtaccct tataaatgag gcccagaga gctgtccctt 300
 ccaccatgtg aggattcagt gagaaggtgc tgctgatgaa ccagaaagca ggccctcatc 360
 agagaaagga tttgccagca ccctgatcct ggactttcca gcctccagaa ccatagtaaa 420
 tatacttctg ttg 433

<210> 587
 <211> 525
 <212> DNA
 <213> Homo sapiens

<400> 587
 ggtctctctn tggtgcccag gctggagtgc agtgggtgcga tcatggctca ctacagctc 60

gacctcctgg	ttcaagtgat	tctccgcct	cagcctccca	agtagctggg	acttcaggca	120
cacaccacca	tgccctggcta	atctctgcat	tttttataga	tacagggttt	tgccgtgttg	180
cagactgatc	tcaactcctg	aactcaagcg	atcctcttgc	ctcagcctcc	caaaccgctg	240
ggattacagg	catgaaccac	tgagcccagc	tgccctttcac	acttctactg	tgcattagaa	300
tcacccaaag	agcttggttaa	gacagattcc	caggctgcaa	tcttggaggc	ctactggctt	360
agtagctctg	ggctgaggcc	tgagaatatg	cattcctaag	aaacctcagg	tgaggctgat	420
gctgctgtgt	gtggactgct	angctangac	angggttnt	tttttcctaa	aaaanggggt	480
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<210> 588

<211> 524

<212> DNA

<213> Homo sapiens

<400> 588

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atgagaagtg	cccctataag	agaaagacga	ggagaagaca	cagacgcaga	gaaggcgacg	120
tgaaaatgga	ggtggacatt	gaagtgacgc	agtcacaaac	caaggaatac	ctggagccac	180
tggaagctga	aagatgcaag	gaaggattct	ctccttgagc	ctttggagag	aatccggctc	240
tgccgacacc	ttgatatcgg	gctgctggct	tccaaaacat	gagagcatat	atctctgttg	300
ttttcagccc	ccaagtttgt	agggattggg	tacagctgcc	ccaggaacat	aatacatgat	360
tgaagaccag	cttttaatgt	acaaacccta	gtacaaggca	ctgcaaacct	cagagatctt	420
cacacaaaaa	ngnnatttta	accnctttaa	aaggnaaaaa	atcttttttc	ccncccntnn	480
aaagggnttn	ncccnaggnc	cttgaggggt	tataatataa	gagg		524

<210> 589

<211> 551

<212> DNA

<213> Homo sapiens

<400> 589

atgcctgggc	atcctcaacc	tggtggacac	gccttcattc	actggagaag	cagcagcagg	60
gcttgcttcg	agtccaggga	agcaagaaaa	cagatctgat	ccccctgtgg	agtgtggagt	120
aggggcactg	cccttgatgg	tgaggagtga	accaacttgt	ttgcagataa	gattgccgag	180
acaattccaa	tggggaaaag	aagtctttcc	aaacatgctg	ctgggacaac	tggtatctcta	240
catgcaaaaag	aatgaacttg	aactactatt	tcacactata	ttaaaacaat	tatcaattat	300
tttgtgactg	aaggcaatta	agaagcagca	aatggaaaaa	gctctcgctg	tcttccccctt	360
ttctgcctca	aggnaggata	taaattctcg	tttactggac	acaactctag	actctattca	420
ccccnagaaa	gcaccncaaa	aatatnttna	cnaacgcttt	tntttttttt	tcccccccca	480
ataangtttt	tcccccantg	gtttcccccc	nnaaaggaaa	agggcttcct	ttggccnngc	540
atTTTTTTta	a					551

<210> 590

<211> 500

<212> DNA

<213> Homo sapiens

<400> 590

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aacatgcaga	gacagagtct	cactctgttg	ccaggctgga	gtgcaataat	gccatctcga	120
ctgcgcgcaa	cctccacctc	ccgggttcca	gtggttttcc	tgcatcancc	tcccaagtag	180
ctgggactac	aggcacgtgc	caccacgccc	agctaatttt	tgtatTTTTa	gggggggacag	240
agtttcacca	tggtggccaa	gatggtcttg	atctcttgac	cttnggatcc	gcccacctca	300
gcttcccaaa	gnngtgggat	tacaggcatg	agccactgcy	cccagcccat	acataagaat	360
tttaagtenc	mncatgcctc	cnttantnaa	aaaacctnt	taggaaaaaga	gaatcagatt	420
ttttcgttgg	agtgcctaca	atggatgaat	ccttttagca	tcattatctc	attttaattt	480
gcaagccaat	ttttaagaaa					500

<210> 591

<211> 526

<212> DNA

<213> Homo sapiens

<400> 591

gaagtcagag	attggaagca	ccattgtttg	cttcaggatg	gagggggcctt	cctgacaagg	60
actgtggggg	acctctagga	gctgagagca	gccccacct	gagaaccagc	aagaaaatag	120
agaataagcc	tggaagcaac	ttttcccca	aagcctccag	acaagacctc	agcctgacca	180
acgccttgac	ttcagcttgg	tgatatcctg	ggcagagaac	tgagccatgg	cttgtcatgc	240
cagcattctg	acctacacaa	ctgtgagcca	gtaaacagg	gaaccagtgc	ttgattagct	300
acgtttctctg	tttctgcatt	ggtgatcatg	gaaacaaatg	ctgagaagga	gcctctgctg	360
cctgggtacc	gtgaatgacc	acggtgaaca	agagggctca	gtaaggaacc	ctgcngactg	420
ggtttaacta	ctgtagnngg	ggnggacaat	cttntttttt	aaaaangggg	gacntttggg	480
gaaaaaaaan	tttcccctnt	ggggngtgga	aaaaaaccc	accag		526

<210> 592

<211> 521

<212> DNA

<213> Homo sapiens

<400> 592

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accatagaga	aaatccagg	tcaataaaaa	ggctaataat	tcacagaaat	atcctgggat	120
caaagagaag	accctgtggc	ctcattggac	attagtaggt	gccttggaag	aagcagagggc	180
aggagacaca	aaggacttca	agtgattgga	acaagaactg	tagaagacat	acctaagcac	240
aggagagggg	aaagagagcg	ttcaattgct	tttgaaatga	gtatttaaaa	accagcctca	300
ctcaggggtg	ccccctgcag	tcctctgctg	agtcaactct	ctgcttgga	gcctcttgct	360
catagctgac	tcagggcaga	aagggtgattg	attgccttaa	gagccttccc	ctgacctctc	420
actcggntnt	tctttcttcc	cccaccttnt	ttcanaagnc	ccctntaaaa	cccaaggggtt	480
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<210> 593

<211> 392

<212> DNA

<213> Homo sapiens

<400> 593

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tgcctgtccc	cagaccgggt	gtggaatcag	tgctcccagg	ttcttctggt	taatacaaca	120
gagcaaatcc	ctgaaggctg	ccgctaaaag	gcagaaacca	ttactttcca	actatctgat	180
acggnttgcc	tgtgtcccca	tccaaatctc	atcttgaatt	gtaactcccg	tgattcccac	240
ccccaccca	aaatctggcc	attaaactgg	ccccaaaact	ggccataaaa	aaaactctct	300
gcagcactgt	gacatgttca	tgatggcatg	acgcccattg	tggaagggtg	tgggtgtacc	360
ggaatgaggg	caaggaacac	caagcccacc	ca			392

<210> 594

<211> 460

<212> DNA

<213> Homo sapiens

<400> 594

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gcgtttctta	gacgttgatg	tttttcaagt	tcattttgaa	attcccttct	ctttctttat	120
tcaagaagat	caacacacag	ctaatacatca	ccacaaagag	tactgcaatc	aatataagaa	180
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ttntgcnttc	ttgggnaaaa	tttaattggc	ttctcttntt	tgaactttgg	aaattctttn	420
attgaaaaaa	aaaaataaaa	ancccnnggg	tttttttggg			460

<210> 595

<211> 466

<212> DNA

<213> Homo sapiens

<400> 595

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agcaaaggca	tcacagaaag	ggaaaattaa	cagttccatc	ttcaaggggc	atgtgtgtgt	180
gtgagtccc	atgcagatac	acatgtgcta	caagatgaag	tagaagaata	attctcacat	240
gaaggcaaat	cagggatgaa	aagaagctac	ctctacacaa	caaggtgaaa	atctaagggc	300
ctcgagtaat	gtgccccctc	ccaaagcatt	attattctaa	gggcagaact	gaactattag	360
gattacattt	tcaatccaaa	atttgnaatt	aaatgnaatg	ggnattttta	aaaatgaatt	420
aangggcccg	gaaaangggt	nggtttcaca	aaacattaaa	tcactt		466

<210> 596
 <211> 347
 <212> DNA
 <213> Homo sapiens

<400> 596						
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gtaaattttt	ttgaggaggt	gtctccatgc	ttggcatgaa	aaccagggga	ggaaaatata	120
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ctggggcccc	acaatctccc	catgttgcac	agactctctc	tgactcctgt	gatctggccc	240
tggtgtcct	ggaatactac	cctctactcc	aacagaattt	ttaattgttc	cacagtgtat	300
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<210> 597
 <211> 366
 <212> DNA
 <213> Homo sapiens

<400> 597						
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tgttcctgtg	gttgtgattt	naacccaagt	gctagtagaa	ttgagcactt	agtttccctgg	120
ttatgttatc	aaaccgaaat	tcggattggc	ctccctaggt	ccctatatatt	gacaatggcc	180
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actagcatat	aagctccatg	gggccagggg	tttttatctg	ttttgttcac	tgctgtgtct	300
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gactcc						366

<210> 598
 <211> 527
 <212> DNA
 <213> Homo sapiens

<400> 598						
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cttgtgggtca	agagttcaag	accagattgg	gcgacatgat	gaaaccccg	ctctactaca	180
aatacgaaaa	ttagccattg	tggtggcaca	cgcctgtaat	cccagctact	caggaggctg	240
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ctccagcctg	ggcaacaaag	caacactatg	ttttaaataa	ataaataagt	gctgagatct	360
caagaaaata	caatgcctag	cttcagaata	ccatatatta	tatattcata	tggntataaa	420
ngnatccnc	cntggttnt	ntgcttaaan	gaanngactt	tcnttttata	gtgatgccag	480
gcnctgctct	aagaatttta	tgtatcctaa	cttattaaat	ctcctca		527

<210> 599
 <211> 544
 <212> DNA
 <213> Homo sapiens

<400> 599						
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atagcctcca	aataagaatg	ccaacactat	caccaaaaag	gaaaaattat	cttcgtttcc	120
ccaaggcctg	cagctttgat	aagaaggcag	gagtttttgg	aggagagcgt	cgtgttcgtc	180
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aatgtgagca	aatgaattt	cattttatgt	taatagggat	tatccttntg	atgaaatcca	420
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 <212> DNA
 <213> Homo sapiens

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tacaggcggt	agccacgtgc	ccaagcctaa	agnttttctaa	tatatgccaa	aggaaaagtn	300
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<210> 601
 <211> 373
 <212> DNA
 <213> Homo sapiens

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ggcatgtgct	tttggagatg	atacagactg	ccctccacag	acagggaacc	aatttttact	240
cccggcaata	atgtctagaa	cgtgagccat	tcgtgtgatg	accgagggtta	ctgtatatatt	300
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<210> 602
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 <212> DNA
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atgtgcagag	aggcgctcac	atgatgctgc	caacatgtgt	tttctgtctc	agatttccct	180
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cgagtggagt	ttggggattt	catttgggtt	taggctgatc	ccctcggggtg	cccagtgcta	300
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 <211> 352
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agtttccttc	atttctcttc	tccttgtttg	agctaaggaa	ttactttctt	gtaccaacaa	300
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<210> 604

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<211> 184
 <212> DNA
 <213> Homo sapiens

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 aatgcaccgg gacaggatca gcccttcaaa ttctcccacg tgggtccctgc aggtcttctc 180
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<210> 605
 <211> 447
 <212> DNA
 <213> Homo sapiens

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 atgaagacaa gggtcacccc tctggatcgg acagtgtgga gttagaagaa gcctcagctc 180
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 gtgtagagaa tactggaggg acaagagtga aaatagggat aatctctatt tcatacataa 360
 gaacccttga ancctgaaaa agttaaatga agtncattag gattgggggt aaaagtactg 420
 gctttaaagt taagttaaacc ttgtctc 447

<210> 606
 <211> 636
 <212> DNA
 <213> Homo sapiens

<400> 606
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 <212> DNA
 <213> Homo sapiens

<400> 607
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 tgatttcaag gtcattgaaa cagtggaaact gacccactc tgtccagctc caaaggccat 180
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<210> 608
 <211> 176
 <212> DNA
 <213> Homo sapiens

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tctaggggct	tccgcagcat	gccttggcgt	gccttggctt	gtggctgcat	tactccaatc	420
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ataaatat						668

<210> 613
 <211> 270
 <212> DNA
 <213> Homo sapiens

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<210> 614
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<210> 615
 <211> 599
 <212> DNA
 <213> Homo sapiens

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<210> 616
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 <212> DNA
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<400> 616						
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caccagacca	gcatttcctt	ttgataagag	accactggcc	atgggatggt	tctgttcagt	300
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<210> 617
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 <213> Homo sapiens

<400> 617						
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<210> 618
 <211> 312
 <212> DNA
 <213> Homo sapiens

<400> 618						
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agccttcaaa	attgtctnct	ttcccaaatt	cctacaagca	acaccacaaa	ctcccgtggc	180
atgaaaaaaa	atgggagcag	nggtgcacat	ctgtaagtnc	cagcctactc	acgaanttga	240
ggccnggagg	atttctggtg	cccanaagtt	canttgaagg	nctgcctgcc	aatatangaa	300
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<210> 619
 <211> 405
 <212> DNA
 <213> Homo sapiens

<400> 619						
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tgatcctgga	gtcctgtgtc	ttctgcagaa	tctgtgaaat	tgtagccagc	taacctgtta	300
gcttgtaaga	tgataaaatc	tcagatcctt	cacaattctc	tatgatattg	tgatttactt	360
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<210> 620
 <211> 324
 <212> DNA
 <213> Homo sapiens

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gcttggtgca	gttcttacaa	cttattattg	agcccttaag	tctatcttgt	ctggacatgt	180
agcagaaaac	aactttacga	cttactaaaag	tatgaggaag	acggcgtctc	actttgtggc	240
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<210> 621
 <211> 312

<212> DNA
<213> Homo sapiens

<400> 621

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gctgactcat	tatttgcttt	tctgatttca	catctattca	tgggtgggaaa	tggagaaaaa	180
cgattacact	ccaaagagga	aaatgaagcc	cccggagtc	tcctgagata	gccactgaaa	240
acatcttggc	tcactccctt	gcacctccta	tgcatacatg	ttttcttttt	cagaaattaa	300
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<210> 622

<211> 543

<212> DNA

<213> Homo sapiens

<400> 622

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ccttctgacc	tatagtatag	acctgtgaga	taataaatat	gtgctgnntt	ataccactaa	480
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<210> 623

<211> 690

<212> DNA

<213> Homo sapiens

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gtggtgcccc	ttcccaagaa	tcattaaaa	ggggaagncc	tgaagggaanc	caaaaaccca	480
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<210> 624

<211> 404

<212> DNA

<213> Homo sapiens

<400> 624

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cataaaaacca	agctgtaacc	caactacctt	gggcatgtgt	gctcaaggct	gtgggtcatgg	360
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<211> 369
 <212> DNA
 <213> Homo sapiens

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<210> 626
 <211> 371
 <212> DNA
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<210> 627
 <211> 561
 <212> DNA
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<210> 628
 <211> 389
 <212> DNA
 <213> Homo sapiens

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 aatttttctt ttcatttttt gtagagatgg ggtctcctt atgttgccca ggctggtctc 180
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<210> 629
 <211> 204
 <212> DNA
 <213> Homo sapiens

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gaagtctgac agatatctaa ctatatccaa gaaagacatg aaaattcatt gatttataaa      180
tttgcataata aatgttaaag aaag                                     204

<210> 630
<211> 173
<212> DNA
<213> Homo sapiens

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actcagaccg gcctgggaaa gaatttattt aataaatggt ggaaagtggc ttc          173

<210> 631
<211> 359
<212> DNA
<213> Homo sapiens

<400> 631
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ggatcacctg agcccaggag ttggagacca gcctgggcaa cagattgaga cctgtctca      180
acaaagaaga agaagaagaa aaaggccagg cgccgtggct aatgtctgta atcccagcac      240
tttgggaggc caagaaggga gaactgcttg aggccaggag ttcagacca gcctgggtcaa      300
catagcgaga ccccccccc atctcaaaaa taaataaatc aaaataaaaa ataaagagg      359

<210> 632
<211> 312
<212> DNA
<213> Homo sapiens

<400> 632
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tggctttaga aagcaaaaga aaaatttttt attaagaaat gaaaagaaaa aagacgcagt      120
atggactcag actgataaac catttgcatg agagaactat caccatttga aaaagagctt      180
ttttgcaagg tgtgggtggct aactcctgta accctggcaa ctcgaaaggc tgaggcagga      240
ggatcacttg gggccaggag gtggagacca gctggcaatc agcaagatcc tgtctctaaa      300
taaagaacca at                                     312

<210> 633
<211> 378
<212> DNA
<213> Homo sapiens

<400> 633
tcctctagtt ccaccaaaga tgaaatcaca agcaggggacc aacctacctg caaaataagc      60
ttcagtccca ctatacttga ccggattacc cacacaaagt gcagcaagaa tcaactgtcaa      120
tataagatct cctaaagtgg ctttgctgga acctctcaca agaattctca gacttaacct      180
ccaatagcct cttgagccaa gccaaagatg catctgcact tgcagatacc tacatggatt      240
tggaataatc ctctcttcat gaggcctcag aacaacttga agttcatggg cctgtcagaa      300
agtggcactc tagggcagcg cagtggctca cacctgaaat ccagcactt tgggagactg      360
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<210> 634
<211> 379
<212> DNA
<213> Homo sapiens

<400> 634

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<210> 635
 <211> 376
 <212> DNA
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gcctcccggg	ttcaagcgat	tctccacact	caacctcccc	agtagctggg	attacaggcg	300
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<210> 636
 <211> 193
 <212> DNA
 <213> Homo sapiens

<400> 636						
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<210> 637
 <211> 471
 <212> DNA
 <213> Homo sapiens

<400> 637						
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aatagaactt	acgttaaagt	ttcttaccac	aaaagtaaaa	aaaatttttag	aaatttaaaa	420
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<210> 638
 <211> 326
 <212> DNA
 <213> Homo sapiens

<400> 638						
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tggataaagt	ccccaccgtc	cctctgcccc	aattcaaatc	cttcatggcc	cagtgcacaa	180
aacttctcaa	aagccccaaa	catctttgtc	taacaggaag	cttttagctt	ttttactgtt	240
ttgacattca	tttccactt	agtattatgc	ttacttgtgt	attaaccttg	tcaccctac	300
tagactataa	aattcttaaa	aacagg				326

<210> 639

<211> 289
 <212> DNA
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 acacttttga aaagaagact atggatctac atgttcattt tgtggtcgaa ttataaccaa 180
 cacgccactc tatctgcctc cactctgctt ttcccatgcc tgtacttaaa tgcttctcag 240
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<210> 640
 <211> 254
 <212> DNA
 <213> Homo sapiens

<400> 640
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 ttctcttcat gtgatatgcc ctgttgctt ctgccatgac tggaagcttc cagtggcctc 180
 gccagaaca gatgccagaa ctatgcttcc tgtacagcct gtagaaccat gccaaataaa 240
 cctcttcata aatg 254

<210> 641
 <211> 285
 <212> DNA
 <213> Homo sapiens

<400> 641
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 ttgggccaat tgttttgatt tttaccctgg atgaaatact catatccatc atnntttatt 180
 aaccccccat ntnttacaca tntggcngca agtactggga ttcaggcaag agccaccgag 240
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<210> 642
 <211> 290
 <212> DNA
 <213> Homo sapiens

<400> 642
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 cgtgaggggc tctgtgcaac tgtatgggtc acatgcccac gaaatggccc tgctgtaca 180
 agagacaaga aagatcacct ctctgtatc agttcccata ttaatcacc ctttttgacc 240
 attctacaaa tgtaactgt tatgcttggt attaaaaatt catcaagtgc 290

<210> 643
 <211> 331
 <212> DNA
 <213> Homo sapiens

<400> 643
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 tcagtggact ctccctttca caaaacattt ttctgtagta tgctatgctg tttgacagca 180
 ttttactcac agtagaactg ctttcaaaat tggagtcagt cctctcaggc cttgccaata 240
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 tagcatcttc gccaggaata gattccatct c 331

<210> 644
 <211> 401

<212> DNA
<213> Homo sapiens

<400> 644
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ctgaagcacg agaatcgctt gaacctggga ggcgaggtt gcagtgagcg aagatcgcg 360
cattgcattg cagcctgggt gacagagcga gactctgtct c 401

<210> 645
<211> 132
<212> DNA
<213> Homo sapiens

<400> 645
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tcaaagttgg aagacattcc tctaccatct acttattctg gttatacatt aaagcatagg 120
agggcatagc tg 132

<210> 646
<211> 125
<212> DNA
<213> Homo sapiens

<400> 646
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gactcaactg taaagagaac acaaagctcc agtcatagga gaaagaataa aataaaaactg 120
ctatt 125

<210> 647
<211> 290
<212> DNA
<213> Homo sapiens

<400> 647
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ggttcctgcc ttaactgatg acatttcacc acaaaagaaa gtgaaaatgg cctgttcctg 120
ccttaactga tgacatggtc ttgtgaaatt ccttctcctg gctcatcctg gctcaaaagc 180
tcccctactg agcaccctgt gacccccact ctgcccggca gagaacaacc cccctttgac 240
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<210> 648
<211> 166
<212> DNA
<213> Homo sapiens

<400> 648
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acctcagcct ccaaagtgc tggggattat anggtgtgag ctgctccgcc cagcccagaa 120
gcaaacccta tattcagtct cattggatta aattctatcc ctccgc 166

<210> 649
<211> 616
<212> DNA
<213> Homo sapiens

<400> 649
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gaaaaaactt ttaccacgct tttttcatga tctttgaaca aggagctcta aattatcatt 120

ttgcactggc	tctgtcccag	ctcatgtttg	ttgagtgaat	aaataaataa	ataaatgcat	180
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tatgtaatca	ggattgcagg	catgttatga	aataactagaa	tagctgaata	ttaaaattat	300
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tttctcagca	tcaatgtcct	catctcaccc	cagtcctagt	tctagtctta	agtggaaatag	420
attgnatcag	actaatcctc	tgacagacaa	caacggncaa	ctgtggatga	aattttaaaa	480
caactattta	aaaatgccag	agagcaaaca	aaagcagaca	agntagangg	cttcaactca	540
cgaaatccan	taacgtnctg	actggagact	catgcccccc	ccccctgaca	gaagggacag	600
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<210> 650
 <211> 101
 <212> DNA
 <213> Homo sapiens

<400> 650						
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<210> 651
 <211> 154
 <212> DNA
 <213> Homo sapiens

<400> 651						
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gcagccctca	ccagacacca	aatcggccag	cccattgatc	ttagacttcc	cagcctccag	120
aactatgaaa	aataaatttc	ttttgtttat	aaag			154

<210> 652
 <211> 241
 <212> DNA
 <213> Homo sapiens

<400> 652						
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tgacagggat	tgcattgaat	ctatagatca	gtttggggag	tgctgccatc	ttaacaatat	180
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<210> 653
 <211> 353
 <212> DNA
 <213> Homo sapiens

<400> 653						
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taactgatgg	cntgggtctt	tgaaattcct	tctcctggct	catcctggct	caaaagctcc	180
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atthtctttt	acctaccgga	atcctataaa	acggccccac	ccctatctcc	ctttgtctgac	300
tctcttttctg	gactcaaccc	acctgcatcc	aggtgaaata	aacagcttta	ttg	353

<210> 654
 <211> 609
 <212> DNA
 <213> Homo sapiens

<400> 654						
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agtccctggg	gaaggcaaag	tgggagccgg	ccagtcacat	ggccagagca	ggagcaagag	120

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gcaactgtag	gaatcgactt	tccatctatt	tggagctcat	cagtgccttt	cttttaggtg	300
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gtgcacatgc	caaaagaagg	cagaggactg	caggagcaag	acgggttgca	aagggggcgt	480
catgactanc	acaatcctgg	cccctcttct	ttcagcntta	taaagaccag	tanaataata	540
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ctccaaaat						609

<210> 655
 <211> 411
 <212> DNA
 <213> Homo sapiens

<400> 655						
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tatgtaataa	acctgcncgt	cttcnntnnn	nnnnnnnnnn	nnnnnaaaan	gngggggggg	360
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<210> 656
 <211> 296
 <212> DNA
 <213> Homo sapiens

<400> 656						
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<210> 657
 <211> 523
 <212> DNA
 <213> Homo sapiens

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gaagtacag	actgagacgt	caatgccaaa	tctttcattt	cccactgtgg	ctttttgttc	360
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<210> 658
 <211> 471
 <212> DNA
 <213> Homo sapiens

<400> 658						
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tccgttcttc	atctatgggt	gacctcacia	gtcctctgcc	tcaattctgt	caccgaaaga	120
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catcacttgt	cagggaaaat	ccttaacca	ggagcaaggc	atctgtcttt	accaaggtca	240

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gaaccagaca	aggctggagg	caagacatgt	atgtgagggt	tgtggncctca	aaagtcanga	420
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<210> 659
 <211> 303
 <212> DNA
 <213> Homo sapiens

<400> 659						
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cctgctgggg	cgcgagggtgc	agagactgta	ccgaccgagg	acccagaggc	tgccaccacg	120
gaggggaagt	cctcagctgc	acagggttggg	gggggggggg	ggggncnnc	ccatctnttn	180
agggttntnt	tcngccttgt	tttttntttc	caaaantttt	atttttgggg	ggncctnnatt	240
tttncagna	cccttcgnnt	tttnantttt	ttgggttnnn	antaaatacc	ctgaatttta	300
ccc						303

<210> 660
 <211> 526
 <212> DNA
 <213> Homo sapiens

<400> 660						
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<210> 661
 <211> 499
 <212> DNA
 <213> Homo sapiens

<400> 661						
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cagtcacata	ttcaggcttc	acttccaatt	ctagttctct	tgctgtttcc	accaaactctg	180
cagttacttc	cacgagtga	gtcttgaaac	cctcaaagtc	atccatgagg	gttggaatta	240
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tctttttttt	ttttgggaaa	ggnggttttn	nttngcccc	nggnngnagg	gcaggggggg	360
ggmntgggtt	aatngaannn	ncnctntng	gggttnncc	antntcntg	cctaancctc	420
cnggggaggn	gggaaaaagg	gggccnccc	nnggccggg	tatttttttt	gtttttttta	480
aaaaaaagg	gggttcccc					499

<210> 662
 <211> 497
 <212> DNA
 <213> Homo sapiens

<400> 662						
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ggaatccgct	cttctcccca	gctctgctga	gcacctcctc	agacatttta	agcagctgtg	120
tcacatgact	tccagtacag	ggagccccac	accaggcttc	catgccagct	ggttactccc	180
aggcctcctt	gactggtact	aatgcacat	gacctcgca	agtgcccatg	ccaggagacc	240
atgaacttta	cctcgatgga	cagccttctc	tcctatgctc	cagctattct	ttttgagggg	300
gattaccgaa	tataataagc	acatgatatg	tacatatgca	tatatacacc	gtttgtgcat	360

gtgtatgtat	agagacacat	atgtcactaa	aataactgct	cacagatatt	taatttcaaa	420
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ttaaaccggg	tttggtt					497

<210> 663
 <211> 580
 <212> DNA
 <213> Homo sapiens

<400> 663						
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taagngaagc	aggaagagcc	atattataaaa	ccatcaagat	ctcgtgagaa	ctcacacact	180
atcaciaaaga	acaggcatgg	ggaaaccacc	cccattgactc	cattacttcc	caccattccc	240
ttccaggaca	tgtgggggga	ttattggggg	attaccaatt	caaaggatga	agattttgaa	300
gttgggggac	caaccatata	actatttgtg	aagnatgctt	ttattatttg	gcaaataata	360
gttattttgca	taaaagtcca	ttaaagtata	ttgctctttt	tnngnaacaa	gggacaaatt	420
gggaagcccc	ttggattatt	attacaaaaa	ggctttttga	ctgggaaata	attatatctt	480
tccaatatga	agtaagacag	ccttttgaan	ggaaactggg	ngggtnggaa	tttttttaaa	540
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<210> 664
 <211> 367
 <212> DNA
 <213> Homo sapiens

<400> 664						
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ccagcctgcc	actcattggc	ctttaccctc	tgtgatgttc	ctgacactgc	cagcaaaacc	120
tctctatcac	agacttacag	cttcctccag	ctgcaagaaa	ccctgggtctt	gttctttatct	180
actaagcaaa	tgaatattat	aatcgacaaa	taaatgagct	tgattgggtc	ctcatccact	240
tattcactca	tgtcacaaaa	attaagtga	ttacaaatat	ggaccaagca	ctgaattcat	300
ttttaaaaat	ttaatgaata	aataaaatga	tatgagtaga	tgcataaatg	aacaaatgac	360
taaaact						367

<210> 665
 <211> 461
 <212> DNA
 <213> Homo sapiens

<400> 665						
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ccacatggag	atgagcttga	agccatccag	gacatttcag	ccacagatga	gctccagctg	120
aatgcaggca	caggtgtaac	cccagccaac	accacatggg	gggcagaaga	accatacagc	180
tgagcccagc	caaccacag	gctttccaga	aacaagccag	gagtgagggtg	ggactcttct	240
acattcagtg	actcaatttg	gtcagaacta	aggacaatga	ggaactggcc	ttgggtgcaa	300
aatttaaggg	agtgcgaaaa	attgagtcac	tgagataaat	tatatattta	tgcaattttt	360
aatgcaatat	tttaactaat	aaaaattaat	gccccaaaaa	aaaaaggcca	gcnngggcaa	420
ttcagttttg	gacttaaccc	aggctgaact	tgcttaaaag	g		461

<210> 666
 <211> 530
 <212> DNA
 <213> Homo sapiens

<400> 666						
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ccgccatctc	ccagggttcaa	gcaattcttc	tgcctcagcc	tcccagtag	ctgggattac	120
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aagattttga	agatcagatg	aagtagttac	cttgggaata	tgacagaaga	gggtctggct	240
ctgttgccca	ggctggagtg	cagtggcatg	atctcaggtc	acagcaacct	ctacctctg	300
ggctcaagtc	ctcccacctc	aggctcctga	gtagctggga	ctacgggcat	gtgccatcac	360

actcagctaa agttttgtgt tttttgtaga gatggagttt tgccatgttg cccaggcttg	420
ggctcaaaact cctgggatca agtggatctg gctgggttcac ccttccaaag ggtnggaata	480
ccngtgggga gnactttgnc cggcccaatg gatttntttt tttgggctga	530

<210> 667
 <211> 136
 <212> DNA
 <213> Homo sapiens

<400> 667	
atgaggacac tgaggtgcaa gacgtttgag gttatccaag ttatccaggg tcacacaact	60
gatgaggaaa ccgagcctca gagaagtaaa gtgaaacacc caagttgata gtgtcaacaa	120
attaaaagtc caagcc	136

<210> 668
 <211> 518
 <212> DNA
 <213> Homo sapiens

<400> 668	
gcccacattg ccgtgcgggtt gggccaagta actcnttgac ccgaggaacg ngntgtgnga	60
cattgcattt nggatggcna ttgaagggga tgtgctattg cccanaatat tccaaaccct	120
gggacccgnc ttagaggggc atggctgnct tcaggganga agccggactc ccaaaattgt	180
tggcaaaatg accccattt taacncttca ngcatgnnga gaatgcatgc cctgnagagn	240
agggatccat gaatggaaga tcttgtggcc aagattggcc tttnatcatt tcacctctcc	300
aaacttccat ttcttcncaa ggnatgaatg atgggaaata naaattgacc tggcngtgaa	360
tgccctggaa ancnacngtg ctgaatcctt aaccacctta ctnnntacct tttccttaag	420
cnttncccc tgggcttaga aaattaattc accgnagggg gnttgnggtt ntggcttttg	480
aaaaaaagcc ctngncttct ttnccttga atgggaat	518

<210> 669
 <211> 296
 <212> DNA
 <213> Homo sapiens

<400> 669	
aatctccctt gttgtggatt tcagaccttg agtgtacagc tccccatctg gactctcgtg	60
aaggctcgtg taaacaacac acagagcatc tctttgtcac gggctcagct gacacgtctc	120
cctccctcac cactgccccg ccagcctcca gcagcacatc tgcggtggac aatgagtctc	180
atttcacatt ttggctctgc ggtaggcatc atcatgggga cagaatacac accacaagat	240
aataaacaag ggactgttca agaacaaata tcaaaataaa gacaaaagga aagagg	296

<210> 670
 <211> 338
 <212> DNA
 <213> Homo sapiens

<400> 670	
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ggttgttgtg gttgacagtt gcagctaaga ttcaagccta cagccagtat ctgaccaga	120
tatatgaatg aatgagcctt tcttgccctcc agccttgggtc tgttctaccg gatactgaag	180
tgggagaaat aagttgtccc cactaaggac tgctcaagtt acagatttat gagcaaagta	240
aatgttgtca tggatttcag tcactaaatt ttgggtgggtt cattatgcag caataggtaa	300
cacaaactat taaagtcttt attagtataa caagcccc	338

<210> 671
 <211> 452
 <212> DNA
 <213> Homo sapiens

<400> 671	
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ctgggttatt	gctccagagc	caatgtttctt	ggggaaagga	agatatgccc	tttgtcaaca	120
ttgccactgc	tggctctgtaa	actcctagac	ggccagctgg	tggttcacaa	accaggactc	180
cttgctctgg	ccctaccctt	acctaccaga	atgaccgtga	acccttcccc	actcactcct	240
acaaccaggt	ttccatctcc	tctctcagct	taggtttccc	taactgtaaa	ataaaagggg	300
tggactaggt	taaggacttc	ctgctatttc	tctctcccac	actctaagnt	tccttaggaa	360
tgcttcagaa	aacagcangg	gttggggcaa	ggatgccact	tgagtcccag	agcaacttca	420
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<210> 672
 <211> 513
 <212> DNA
 <213> Homo sapiens

<400> 672						
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ggagctataa	cactcaccga	gaagatctgc	agcttctctc	ctgaagccag	cgagaccatg	180
agcccaccag	gaggaacgaa	caactccaga	cgtgctgcct	taagagctgt	aacactcaca	240
gcgaaggtct	gcagcctcac	tcctgagcca	gcgagaccac	aaacctacca	gaaggaagaa	300
actccgaaca	catctgaaca	tcaaaaagggg	cagcctccag	acgcgccacc	ttaagggctg	360
naacacttca	ccccggccng	ggnaaaagnn	gggggggggtt	tttccccccc	gncccnnggg	420
ggggnntttt	ttttcccaaa	ntttttttccc	tttttttnggg	aaaaaaagnt	tnccccaagg	480
ggnngggggg	aggggggaaaa	accccccccc	aaa			513

<210> 673
 <211> 150
 <212> DNA
 <213> Homo sapiens

<400> 673						
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ctactcgggg	agctgggtcaa	atgtggaatt	tcgaatatca	aatatgtata	aaataaatag	120
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<210> 674
 <211> 423
 <212> DNA
 <213> Homo sapiens

<400> 674						
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tataatagcg	ttcattttat	gtattaagcc	agatttgcac	aacaattcca	ttgtaataca	180
aatgtaatct	ttagaagtaa	ttttaaagca	gcaaagttag	aaatgccaac	cctcaagtaa	240
aagaaaacaa	ttttcctaag	ccaaatgtct	tttgtgagag	atttcaatgg	tcatttgatt	300
ttagtttaaa	gatcatctga	ccttatgatt	cacccgattc	ttaaatgcac	atctcaaata	360
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ttt						423

<210> 675
 <211> 497
 <212> DNA
 <213> Homo sapiens

<400> 675						
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tcaaggcttc	agatgactgt	cactccagcc	aacatcttga	ctacgacctc	atgagagact	180
ctgtgccaga	accaccagc	taagctgctc	ctgaattcct	gacccccaga	aactgagata	240
ataaatgttt	attattttga	gccacaatat	ttttgggtaa	tttggttgaa	ggcaatagat	300
aactaataca	ggctctcata	atgtcattta	tttgggtcca	gtcagcatgc	tttaagatct	360
gggagggttt	tttttttttt	tttccccctt	ttttttttcc	aatttttncc	ccccnatttt	420

taaaaaaatt ttccnnttta aaaaanccca aaggggcccaa aaaatTTTTT tntTTTTtnaa	480
aagggggggg gaaaaaa	497

<210> 676
 <211> 517
 <212> DNA
 <213> Homo sapiens

<400> 676						
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aggcgtgtat	caccacatcc	ggctaatttt	tgtattttta	gtagagacga	ggtttcacca	180
tgttggccaa	gctggtcttg	aactcctgac	ctcaagtgat	ctgcccacct	cggcctcaca	240
aagtgttagg	attataggca	tgagccactg	cacccgactg	tattgtaaag	catattgaca	300
ccttcaccta	actgtgtttg	gatcaagtca	ctctgggaga	aagccagttt	caatatcctg	360
aagatactta	agcagtcctt	taatttttgn	gggggaaaag	gnaaaaagga	aaantTTTTT	420
tccccgnttt	ngggggggcc	ccaaaaaggg	ggggggnaaa	aaaccctttg	gggaaaaaaa	480
ggncccnttt	tccccctttg	ggtttttccc	caacccc			517

<210> 677
 <211> 407
 <212> DNA
 <213> Homo sapiens

<400> 677						
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gccaagggtc	tacttggtac	tctgtactca	tttctgtttg	ccagctgggtg	gacaatatgg	120
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gatagctgct	agggagtttc	tggagtgct	caatagtgc	atatgtcaag	ttgagaaggg	240
acagctgac	ttccagggta	gagatggac	cactccccac	tctcataaag	aagatgtggg	300
tttgtttgac	cttcactata	taggaaaaag	cctcacaaat	tcttcanccc	cttggatgga	360
ggcttnaann	cncccctttt	tnncccnaaa	ncnaaaaacc	tttttg		407

<210> 678
 <211> 343
 <212> DNA
 <213> Homo sapiens

<400> 678						
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caacattgct	ggctctgatg	gaggaagaaa	gccgaggaat	gccgccagcc	tctacaagct	120
gcagagacaa	ggaaacagac	tctccccac	aaacctcaaa	gagaaacgca	tgctgccatc	180
accctaata	tagtctggcc	tgacagacca	ggagtgaag	ataatacata	tgtgttgttt	240
taagccacca	cgttcgtgaa	atttcttaac	agcagtagta	ggaagctaata	ataccgcgca	300
agtagagatt	gattaatttg	gttaataaaac	aacaactcct	agg		343

<210> 679
 <211> 511
 <212> DNA
 <213> Homo sapiens

<400> 679						
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atttgccttg	cacgtcatag	ctcagaaaag	tttgctgtct	atacaatcct	cagcaaagac	120
catccattca	ttccgggatt	ccccagctc	atggacacag	gtcgggtctc	aactacagac	180
agccttcttc	tggaaactct	caccagcctg	atttctaaac	tccagtgcca	ccttcacatt	240
gtttgcctgt	tttcagtgcc	tttctctctg	agatctctca	gtaggcagcc	gtaaggagtc	300
agcaaaggct	aacacggctg	ccctcagctg	gaaacctagt	gtagtgccta	ttacatttct	360
cctgggaaac	ccnaaaaanc	cttttttccc	ccntttttt	tgggtttggg	ggaaaagggg	420
aaaaaaaaaa	ggggggggcc	ccnaaaaatt	tttttcccaa	aaaaaaaaacc	ccctttcccn	480
tttaaattn	cccttttttt	taaaaaaggg	g			511

<210> 680
 <211> 155
 <212> DNA
 <213> Homo sapiens

<400> 680
 aaactttgtt cttgggacct tctgctccac aggcaagaga gagaatttgt ccaaatacac 60
 gaaatggagc tcaagaaaac ttcattctgat tctcaaagaa cacacatctc aactgacatc 120
 tggccccaca cttggtaata aaagtgcatt ggtgc 155

<210> 681
 <211> 512
 <212> DNA
 <213> Homo sapiens

<400> 681
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 gcaccacat caaccagtg gctcaagtct gaaaagtcgc tcaagtcac tttgaatatt 180
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 cttctctcac ctttactaca agagcctcct ttctctaatac atgccttaac cccagatcag 360
 ttcttttccc tttttttttt ggggggggga aaaaggngtt tccccttttg gggaaaagg 420
 ttttaaaaaa anatttcccc tttttttttt ttttaaaaaa aatttaaaaa nccccaaatt 480
 ttnaaatttt aaattttccc tttgggggaa aa 512

<210> 682
 <211> 536
 <212> DNA
 <213> Homo sapiens

<400> 682
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 aataaaaaata aaaataaatg agccaggctg agtggcgcat gcctgcagtc ccagctactc 180
 agaaggccaa ggtttctaata aaccataaga tcataccatt ggactgtgtg aaaattttca 240
 gaactctaata gaagaaatga atggcttcat gaaactgcc aagcaagatca agcagatcaa 300
 gaattaatta ccgtgaaact gaactgatga agatttaaag aaactatttc tcttaagctt 360
 tctagagctt gcagagatct ggggtcaggc ccnaatttt taaattttta ancccttttt 420
 tttttttttt gggnnngggg ggaaaaaac cncctggggg aaaaattttt ttngggggg 480
 aaaaaacccc aaaaaatttt ttnacccctt tttttttttt tttttcccc tttttg 536

<210> 683
 <211> 372
 <212> DNA
 <213> Homo sapiens

<400> 683
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 acgattctcg tgcctcggcc tcctgagtag ctgggactac aggcattgcac caccacgccc 180
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 tcctgacctc atgatccgcc tgcctcagcc tcccaaagtg ctgggattat aggcattgagc 300
 caccgcacct ggcctcaaaa agagctcttg aaatattagg gctagttagc cttttgtcag 360
 tattggaatt tt 372

<210> 684
 <211> 470
 <212> DNA
 <213> Homo sapiens

<400> 684

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tcaagaaaca	aatgaaagag	aacatctctg	cccagccata	gaagaaacta	ccagactctg	120
aagtggaaac	acttatacca	gtgcatctac	acccaaaagg	ggaatgagag	tggctgcttt	180
tctggcagcg	tggagacgaa	cattagaaaag	aagatgctgg	atttgggtag	catgaagcag	240
tgaccgtgtg	ccccacaccc	agtgcgcagc	aagaaccccc	tctaggactg	gtggagctgg	300
aaccatcatt	aaaggataaa	ctgctcatct	caaaccagag	gcaattaagt	gacagagggg	360
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<210> 685
 <211> 540
 <212> DNA
 <213> Homo sapiens

<400> 685						
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taanagnctn	tttngncttc	cttgctcact	gntnaatatg	gctgaactac	gcangnggtc	180
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aactgagcca	atactataag	cacagaacat	ttttanaaag	tgtgggacag	aggaaggccc	300
ttcccaagat	attgcttcgg	gaccagaat	ttaaacattc	accattggct	tccggtcatg	360
caggctgtca	catgctcctg	aaaaagaagg	gctgcgtgat	tttnaaaaan	ncnnantttt	420
tttttttttt	tttcnaaaac	ccccctttt	tnnttttttg	nggggggnga	aaaagaaaaa	480
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<210> 686
 <211> 416
 <212> DNA
 <213> Homo sapiens

<400> 686						
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ttgaagggcc	accaaaccag	ctgttccccct	catggaagag	gagcatagac	ataaaatgtc	180
aaggcaatgg	ggaaggggca	gagaaaaggc	acaaacactt	ggaggagaga	cagaacaatt	240
aattggcaca	aaaatacagt	attggtgtca	ggaggctttg	gtgggcttgg	aaacatcaag	300
cagcagatct	gaaggaaatc	cagccctggc	atgaaagaaa	cgggggcaggc	caggcgcagt	360
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<210> 687
 <211> 469
 <212> DNA
 <213> Homo sapiens

<400> 687						
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ntcctggnntn	tttgtttngg	cctgcaactc	cggttttget	tccttgccctg	ccccctggct	120
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<210> 688
 <211> 608
 <212> DNA
 <213> Homo sapiens

<400> 688						
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ttccaaaagg	aaggtgggag	gaaatagctt	gggtggctca	ctgtcccaag	acactggaag	300
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tggaaaccttt	gggtcttgctt	gggtttccca	aacctctggg	gttacnacat	tnaanaaacc	420
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canaggaaaa	cctcttatgg	tcttccatt	atctttccat	ttccaanaac	aaccttntt	540
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aaaacatt						608

<210> 689
 <211> 174
 <212> DNA
 <213> Homo sapiens

<400> 689						
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agtggagatc	tgatacagac	ttttcaagaa	tgtctcattg	cttagacaa	ttccctgaca	120
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<210> 690
 <211> 399
 <212> DNA
 <213> Homo sapiens

<400> 690						
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ttgattatgg	ccttggtgaga	gagattctaa	agcagaaggc	ccaggtcagc	tgtgccaga	180
ctcctgattg	aaagaaactg	tgaggtactg	gccagacgaa	gtggttcaca	cctgtaatcc	240
cagcactttg	ggaggccgac	gtgggtggat	cacctgaggt	caggagtctg	agaccagcct	300
ggtcaacatg	gtgaaacctt	gtctctacta	aaaatataaa	aattaaccca	gcatngnggn	360
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<210> 691
 <211> 457
 <212> DNA
 <213> Homo sapiens

<400> 691						
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attggctcct	ctctgaaaag	gtcacccctgc	ttttcagaca	gaatttgtga	ctctcggcag	180
ctgggaatac	tttggaactg	aagagaacct	attaggagag	agaaaaaaca	gagtcattgat	240
taagcaaaaa	aaaatggaga	aaagattcac	ctctaaattt	tatttaataga	caacaaaaac	300
acacaacatt	tctctttgat	tcataacggt	aataaattct	acttatcggt	tgcaataatt	360
ccaaggngtt	ctaaaaacat	ctttatatta	aaaaagaggt	ccatattagt	ttgaattact	420
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<210> 692
 <211> 431
 <212> DNA
 <213> Homo sapiens

<400> 692						
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ttctccagct	ncacttggtc	tgatgaataa	ttccaaccag	cacttccaga	agcttgagct	180
gtctctttggc	tttgataaca	gctagctttt	tgggggttac	ataaacattc	acatnttttg	240
taccgctgtt	ngacaatgac	tcctggcttc	tgatnggact	gagccttana	aaggatctgg	300
gccatnggna	tggtnntttt	tttattgccc	cncttnggta	aaaaaccttt	cctncttnaa	360
aatttgggga	accgcttgan	ggngggggca	nanatntttt	ttttttttga	aggntcttca	420

<210> 693
 <211> 618
 <212> DNA
 <213> Homo sapiens

<400> 693

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anncttngtt	atggacctcc	ttgnatngat	ccnacttgag	accccaccan	nttngggcca	120
acccttgctt	gggggggaat	taagaaaacc	cttcntcttg	tccanaagtt	aaaggggggc	180
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agaagcccca	aggtnccccc	anggacaagt	ggcagccacc	tttgtnccaa	ngccggggcc	300
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cattcttgaa	ntttgccaga	aaaacttggg	aaagccaaga	agaaccccca	agtttangga	420
agcctactta	ccaacttatt	tccangggcca	aggaaaaaga	acaagttggg	cctttgggaa	480
ttgggggaat	tgtnggtatt	ttggaaaagt	ngggaagact	taaccanaa	nggttccttt	540
gggnaaaatg	gtaccantcn	tttnttagct	ttccccaaan	aactttgctt	gcttnggtgg	600
gggaaatggt	tccaaggt					618

<210> 694
 <211> 435
 <212> DNA
 <213> Homo sapiens

<400> 694

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tctgtcagag	ttaagggggc	tgaatgggta	caggtcacat	tcttggagct	caaggtgaca	180
ggccagagcc	cgggtcccca	ggacagtgca	gcaccttgct	caggcggggc	tcccgtttct	240
ggctccgggc	tgagcttcct	ggagaagagg	aaggttcatc	tgaattgcag	aaactggaag	300
cagagagccc	agttaggagc	tactacaact	atccaggcaa	gaaagacagt	ggcttggatg	360
gggatgtggt	attgaaagtg	gagactanca	naagtcttgg	naatgtcatn	ttatactacc	420
aaaacttgct	gctgg					435

<210> 695
 <211> 282
 <212> DNA
 <213> Homo sapiens

<400> 695

taaccagtga	ggaactgagg	tctoccagca	accacctgtg	tggagttgga	agcggcgctc	60
tctctctctc	tctctccagc	aaccagtgag	gaactgaggt	ctcccanan	ccacctgtgt	120
gaagtnggaa	gtggattcct	tancctcagt	caaaccttga	aacgactgaa	aacctggnc	180
acagcttgtn	taaaacctca	tgagagaccc	taagccanac	tcncttacct	acagaancct	240
ttatntgtat	ctctgaataa	atgtntgtta	ttttaagcta	ct		282

<210> 696
 <211> 451
 <212> DNA
 <213> Homo sapiens

<400> 696

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acttctttgc	attcactgaa	caaccttccc	ttaagaggga	accaacaccg	cctgatgatg	180
ggcaaactga	ggcttacaga	gatgggagac	tgcctgcacg	ggaccattca	gctcagaaac	240
agtggaacta	gaacttgagg	ccatgccttt	cagagctgct	cccatcttct	tactgtccat	300
gccgctctg	gcactttata	aatgacagag	ggtccgatat	gggcatcatc	acatggttac	360
ccatgggtacc	ctaaagtgca	gacccaagc	ctctcacctg	gacatctgcc	acaaaagctg	420
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<210> 697
 <211> 278
 <212> DNA
 <213> Homo sapiens

<400> 697
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 tangggantt gaagcnaaag atcacgctgc ctgcctacac cangaaacag ccaagacccc 120
 ccttgcacga accaaccattc ttccaccctc tccaactttt ttctggaacc ccttcacttn 180
 caacgcctc aatgtacact tcactttctn gtgctcttcc taagagagta gtgntttntt 240
 nctccccacc gagaaaaaaa aataaaagca acaactgg 278

<210> 698
 <211> 293
 <212> DNA
 <213> Homo sapiens

<400> 698
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 cttgtcttat tgtccaggct ggattcaacc ttgtgggctc aagtgtcct cctgcctcag 180
 cctctggagt agctgggact acggatgcat accaccacat tctgtctcat ccctatgtat 240
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<210> 699
 <211> 475
 <212> DNA
 <213> Homo sapiens

<400> 699
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 ctgtcttaaa agtctcactt ggtgatattg gctgagtcac gtccctcccc aaaattctta 180
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 gtgagataat taaggcaaaa ggaggtcata tgggtggggc ctccctacag aggagactgg 300
 tatctctgta agaagaggaa tgaggacaga gacacgtaca gaccaaggga ccatcatatg 360
 aggacacaga aagaagggat ccattcttcaa gtgaagaaaa gaggcttcag gagaaaccaa 420
 acctgcccac atcttgcatt gggactttta accttccaaa atttaaagaa aataa 475

<210> 700
 <211> 458
 <212> DNA
 <213> Homo sapiens

<400> 700
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 agaagtccct aacgaggaca aaatgagagg tcatacgcca agtgtatcaa gtacacagaa 120
 attacctcat ttccaaaggg aagattggat gatactccac agccaatatt gacttactga 180
 agatgttatc aaatcctctg cttttcctca taatgatatt agaagataaa gacgtgctcc 240
 gctacagagt cttcaaagga agcagaaaaa gtataatata taattttaac ttaagaggaa 300
 cactgctgga catcatgaga attccatata atgagtgtca catctatcag aaaaccaagg 360
 gtatgaactc taaagaaata gaagatgggt gtgaacaggg accacctctc tgcctgattt 420
 gntttctgcc taggaggncc ttcataattg catgggtg 458

<210> 701
 <211> 523
 <212> DNA
 <213> Homo sapiens

<400> 701
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 gagctaaaga ttttgagacc agcctaggca atatggatgt attatggtat tctctggaaa 120

gattctgtga	acaagcaaga	cacctgtttc	aggtcttgtt	aaataccagg	tctttccatt	180
tcctttaagc	ctttcagaga	tttangccat	gtcatcatac	ctgatcactt	catacctgaa	240
ccccacaagg	gcagcagcat	cctccggtgt	ctactaccgg	tgagaccccc	tctagagaaa	300
gttccagaaa	acaagatgag	ttcaaagagt	tcataaggga	cttttggggg	aagctacact	360
attattagtt	aacactgaac	agggagcccc	gagatctaga	ttcttgntgn	atttgccttg	420
ntcatatgac	tttggacaaa	ccactcatct	tttaagnacc	ctcanttcc	canttatttt	480
tgganaacat	tggagtaaa	ggacctttaa	agtctgttta	ccc		523

<210> 702
 <211> 475
 <212> DNA
 <213> Homo sapiens

<400> 702						
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cccacgttca	acttgataag	agaggagaga	gcactgtgtg	aaggcaagag	ctggtaagct	120
cagacaacag	aaagaccggg	actaactcct	gtcatcact	tcactacacg	gccttggcca	180
tgctgctgat	cttcacagca	tcaggttcct	catgggtgat	ttgggaatag	caactggacc	240
aagcctcaca	gggtccttca	tattatttcc	actcattatt	gttgaaatct	tccagttttc	300
tcattattcc	caatgcttca	aaataaaaga	gaaatttagt	aagattaaat	aatggaaaaa	360
ggaagccaaa	gaatatccag	ttacgatgtt	caaagagata	agctggccct	gaggcatatt	420
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<210> 703
 <211> 527
 <212> DNA
 <213> Homo sapiens

<400> 703						
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aggctctcgg	tgagccattt	tggtttctat	tgtgggactt	gtgtgctgtt	ggggcgccca	120
cagatcccac	agggctccag	ccttggcaac	gacatcgacc	aataccccgt	ggttttcagg	180
aatgccagcg	accagggctc	ctggatgcag	ctggagatgc	tactgcggaa	gctctctgac	240
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tagcaaggaa	agtgtttcta	tcaactggaag	gaggataatc	agaccaaggg	ctccaaggaa	360
atactgcccc	cgtctagtgc	aggagcagaa	atcgaagtca	tccatcagct	agcgtgtgga	420
caagctcact	attcacacaa	acttaaccta	acttaagtca	atccaantcc	tatttttggg	480
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<210> 704
 <211> 505
 <212> DNA
 <213> Homo sapiens

<400> 704						
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cctggatgct	acgtttttgca	tcttcttttag	ataccottga	ctcgtacatc	ctgtctgggc	120
taatgttggt	ttctgcttgc	agtgtgtctg	gagttctcaac	aagtgcccaa	gccaccctca	180
aagggtcact	ccttgttttca	agagcacttg	tgcttgccct	gacctctctg	tcgctctctg	240
attccactta	ggaagctgct	tagttccatt	tttcaactga	aaaattatcc	tctgcttcag	300
gccactctgt	catactgttt	tgtgtagtgt	tttaaagcta	atttgaacta	ggcaatgtct	360
tagccttaga	tatagacaga	taattttcca	gatcagacaa	gctatagtaa	agcttcaaag	420
ggaaaacttt	tattcctaaa	gagaatanaa	aactcatctg	gggtaatcat	aattggattt	480
aaaaaatgac	ccaagttgaa	ttttt				505

<210> 705
 <211> 377
 <212> DNA
 <213> Homo sapiens

<400> 705						
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cctctgcctt	ccaagttcaa	gcaattctcc	tgccctcagcc	tcccagagtag	ctgggaccac	120
agacctgcac	caccacaccc	agctaatttt	tgtatttttg	gtagagggtgg	ggtttcgccca	180
tgatgccag	gctgggtctcg	aactnctgcc	tcaagtgatc	cacctgcctt	gacctcccaa	240
agtgtctagga	ttacaggcgt	gagccaccac	acctggccta	attatatctt	tctattaagc	300
cttacctaata	aatagtaaga	agtaggattc	tctttggctg	ggtcactatt	caataaaaata	360
ttaaagtcac	ccatgtg					377

<210> 706
 <211> 533
 <212> DNA
 <213> Homo sapiens

<400> 706						
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gccctgggtc	ctggactgaa	agcacgaaac	aggatctccc	tgtgttgccc	aagctgggtct	180
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tgagccaccg	caccgggnc	ataacgaaaa	agncttgatt	cncttngcac	attgagcctc	300
cccttttttg	natcttttgn	ccccaanccc	tgtagngaga	aactgcctga	gaaaaaanccg	360
gngggnacac	antggagaac	tggaaaaaaa	accccgaggt	gggaancaca	tctgggtgcc	420
cnctccctga	catgaatgtg	accaactctg	gttttaanat	ttttgacatn	tgaagccana	480
aantnccctt	tctactataa	ggggagtggg	agggggattt	ccacactttg	tac	533

<210> 707
 <211> 520
 <212> DNA
 <213> Homo sapiens

<400> 707						
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gccatcgcat	cccccgtagc	ttgcacgtat	acgcccagat	ggcctgaagt	aactgaagaa	120
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ccagagaaca	aacccccctt	gactgttaatt	ttccttttacc	tacccaaatc	ctataaaaacg	360
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tgaataaac	agccatgttg	ctcacacaaa	aaaaaaaagg	ccagngagggc	caattcaagc	480
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<210> 708
 <211> 508
 <212> DNA
 <213> Homo sapiens

<400> 708						
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ccatttcttg	aagctgcaga	gttctatagc	tggcttgggg	caggtgggaa	aagaagaact	120
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<210> 709
 <211> 229
 <212> DNA
 <213> Homo sapiens

<400> 709						
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tctgtttgt	ccccagcacc	cagcacaatg	cttgacacat	agtaggtgct	caataagttc	180
caactgaatga	atatacacia	ccaatcctga	taataaaagt	ttgttattg		229

<210> 710
 <211> 298
 <212> DNA
 <213> Homo sapiens

<400> 710						
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gtggtggcac	ggagacctct	tggtgaccaa	gccggacact	gagcaatctg	tcagcagctt	180
atcaaaagaa	aacacaagtc	caaactttgt	angaaaatac	ctgattaaaa	tcactctttc	240
aggggggtatc	tagtacatct	ggcaggccag	tctggtattt	aataaatcct	gctccttc	298

<210> 711
 <211> 299
 <212> DNA
 <213> Homo sapiens

<400> 711						
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gcactgtcga	gatgggagtg	tgccaagatc	agagattaat	gcatattaaa	gaaggtgaag	120
agaatttcac	ttctggatga	tgtgagcacc	ctgcagtttg	ctgtgtactt	ttcatacact	180
tatgtattta	tctaaaacct	tccatgattt	ttttggtgca	gtagtataca	gaatctgaac	240
tgttataagg	tcaactgtaa	acaattatct	aatagttatt	ctaaaacttt	acctccaat	299

<210> 712
 <211> 435
 <212> DNA
 <213> Homo sapiens

<400> 712						
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tatgtttttc	tcttg					435

<210> 713
 <211> 334
 <212> DNA
 <213> Homo sapiens

<400> 713						
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tgccgaatgt	tgcaatactg	tctgcccgcg	aacctttcca	ttcttacagc	aaatcactcg	240
tccataaaga	cagactgtag	tgattcta	gcttctgtaa	aatatctact	tattggcact	300
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<210> 714
 <211> 567
 <212> DNA
 <213> Homo sapiens

<400> 714

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caaggtgatt	ccngccntt	ggnctctcaa	aagtgtggn	attacagggc	ggnganccca	180
cccccccca	accaaaaacg	tttttttttc	ttantttacc	cgccgggggg	gaaaagaaaag	240
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<210> 715
 <211> 652
 <212> DNA
 <213> Homo sapiens

<400> 715

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ttctggatgc	accaatgggt	acctactata	catggtaaat	ggnttttaaa	tatcacctta	600
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<210> 716
 <211> 485
 <212> DNA
 <213> Homo sapiens

<400> 716

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tttcc						485

<210> 717
 <211> 667
 <212> DNA
 <213> Homo sapiens

<400> 717

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667

<210> 718
<211> 679
<212> DNA
<213> Homo sapiens

<400> 718
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acggaggtgc agagaggtta gtttagcatg tgtctggcac tggcatctat ctcttactac 480
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cataatagca agtagattct ttcaaagaca tgaacatata ggaaaataca agntttactc 600
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gganggggtct attgccaag 679

<210> 719
<211> 592
<212> DNA
<213> Homo sapiens

<400> 719
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ttctttgaac ttcttaacag gcaaaacaac tgcataaaaag agatactcaa ttaagttatt 420
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aaacttaatt ctttaaaaaa tggcttgggt ggggcatcat aaaaagacac tgagntatgg 540
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<210> 720
<211> 316
<212> DNA
<213> Homo sapiens

<400> 720
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acnanancac tctaattgcn cnaaaatagg cactatccac caaacttctt ggccttgaga 180
atngtttacc aanaaacttca aagatccctc ttgcccacat cttgaaaaan gcccccttc 240
cctataaaaa aatcanggac ccccttgctt aaagnnaaac aantgcccc cttgtnaaat 300
aaaattgttg gaaaaa 316

<210> 721
<211> 184
<212> DNA
<213> Homo sapiens

<400> 721
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ttcctctatg atcacaagaa ttccctattt agaactgcat atgggtgccc gttgggtaac 120
ngtttcaagt tgaaagaatt ttgcattttg tgttattgta ctagaatgaa ataactttaa 180
tccg 184

<210> 722
 <211> 592
 <212> DNA
 <213> Homo sapiens

<400> 722
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 ctgacgggct ttggagctgg aacacttaaa ctgggtccaca agaaagtgcg ggatgtttgc 180
 catctgtttc cagaaagctt ccatctgtga aatgagcaca agcagcaaga agtgaggtga 240
 aaaacttact taagaaagcc aaacgggtgcg tgcttgggaa ttacaattca ctccttatca 300
 caaacaaga ttctaaacaa ttctacagtt tcagtgaagt tatcttggca acaatcaccg 360
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 atggtgtttc agcagacacg agagcactgc tgctaaggaa agaaagcagt agcttgtcca 480
 gcctacagac tcttgacag gtcattacag ctacctangg gctgatgaaa tgtgacaatg 540
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<210> 723
 <211> 167
 <212> DNA
 <213> Homo sapiens

<400> 723
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 ctggattcag ggtccagagt gctcaccatt acaccatgga acctcaaacc agacatcaac 120
 gtctctaata agtctttctt tattccaata aaagaaaatg gtcagtg 167

<210> 724
 <211> 477
 <212> DNA
 <213> Homo sapiens

<400> 724
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 tgcacgggtc cacttacaca tggattttct tccgcctctg acagcaagac aaactcctcc 120
 ttttcgcct ccttcacctc agcctattca atggtaagat gatgaggatg aagaccttta 180
 tgataaagaa tagagcaact ggacatcagc aaaaaagtga atcttcacca aaaactccca 240
 ccttatacaa aaaattaact caaactggac cacagactta atgtaaaaca taagactata 300
 aaactttcag ataaaaacag aagaaaagtt ttcaggacct agagctacaa aactagttct 360
 tagaattgat gccnaagcn ccacccccca agaaaaatta attgggnctt tttcaaagtt 420
 aaaanccttt gntcaccaaa agaccctntt angcagatga aaagagtagc tgcagac 477

<210> 725
 <211> 188
 <212> DNA
 <213> Homo sapiens

<400> 725
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 aaatgtaaaa gcttttatat ccaggactg ttattcaaag cacctttaag ctcagcttct 120
 tacagcgccg tctgaaaaaa tacaaaacaa cagctatgtc ttgcaagtaa aatcaatggg 180
 ttctcac 188

<210> 726
 <211> 682
 <212> DNA
 <213> Homo sapiens

<400> 726
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 gagtgcttag tctggggccc agcgactca tctggaagca tgtcagcgga gccgcgggac 120
 agctgccacg gacggcagtg gccccggatt catgtcccga gtctgaagag agctcctccc 180

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tcattcctgg	aattcctacc	tcctctcact	gccctgggtt	tggcaccang	tgctgagtgg	600
gcctcangcc	aactgtgggc	atgggctcga	tgcgctgct	ttctttctca	catcaaggna	660
ttcagccgna	ttctacccca	aa				682

<210> 727
 <211> 663
 <212> DNA
 <213> Homo sapiens

<400> 727						
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acagaggacc	aagggcccca	agagagtcaa	catgcaatgt	cagcaatgca	gtgccttaa	180
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tcggacaact	ccccaaaaat	gtcacattct	gagacaggtt	aaccaagggc	ttgggcctct	420
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agcttgatgt	tccccagagt	tctggctcang	ctcttncat	ctctttgcct	gaaaagaaac	600
tcaaggcctt	nccaagtggg	agccatcacc	actggatggn	cagcacccaa	atctcacccc	660
cga						663

<210> 728
 <211> 580
 <212> DNA
 <213> Homo sapiens

<400> 728						
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caactgaaga	aagggccctc	ggagatcatc	cagcccatcc	ccctcatttc	acagcgaaga	120
tgtgagctgg	aagcttcaca	gaaacacaca	gctcccaggc	ttcagtaagt	aatcatgtag	180
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caggcagtct	cactcagatt	aatgagactg	agtttctgat	tcccagtggc	ccataggtca	360
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gcattgcatg	gcactgtgtg	caaagctctg	agctaggtac	tgtggctgat	aaaggattac	480
tatatagtat	gaatctgtgt	ttaagaaaaa	gaacccccca	gaacctgatt	gcctggggat	540
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<210> 729
 <211> 278
 <212> DNA
 <213> Homo sapiens

<400> 729						
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gatcaataaa	ctggctcatc	tgggtcttng	gcctccatcc	aagtaccaac	tcagtgaag	120
aagacagctt	cgaccccgta	tgatttaate	tccaacctga	ccaatcagca	cttctactcc	180
ctggccccct	acccaccaa	taatcctcaa	aaaaacccag	tctccaaatt	ttcaggaaag	240
actgatttga	gtaataataa	aactctggct	tcccgttc			278

<210> 730
 <211> 700
 <212> DNA
 <213> Homo sapiens

<400> 730
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 gggaggacct ttttcaacga cncctggtttg ntttgtggcg tttcctttgt gggaaccngn 120
 ngntcttttt ngttngtgag aaanttcngn gattccttgg aattttcnct tacttttnct 180
 ttgcntgggtg natnccttta ttgggtngcc gggctgggan ttttttttgc tttttaatnc 240
 nattgtgggtg gtcttcnaaa ngaaaaccnc ttttagaagg gcaaanaaag gcccaaaaaa 300
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 caagccangg ggccaaaggg gggaccnann aaaccccgct caaaggccca nccaaaaaaa 420
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 gaccttttgn aagggaaggg cttnccttgg ttgttnttgg aaaaccgggc angttggtat 540
 tttttacca ccaaattatt gttttcccat ctcttctttc cctttgnctt tctttttttt 600
 gggaaatggg ggtttttctt tttttcccat tttttcattt taccaccctt ttttggcntt 660
 tgggnaaaaa gaaattgggg atttaaattg ggattttctt 700

<210> 731
 <211> 353
 <212> DNA
 <213> Homo sapiens

<400> 731
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 gaactcccgg ctcaagcaat cctcccacct ctggctactg agtagttggg attgcaggtc 120
 aagccaaaaa gtgatcggcc attcttttac cgggttccag ccaactctgt ccgctaacc 180
 ctatgacaga ggagatggga aaataattga gctgctacct aggaaggcac aaacatttcc 240
 tgtgggtgagg acttaggaag cagtgccagg aatcgggcca tcggaaggcc taagcacact 300
 gggcacaggt tttctgcccc tagcaaggga ctgacaataa agtcaagtga agc 353

<210> 732
 <211> 266
 <212> DNA
 <213> Homo sapiens

<400> 732
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 tcaagcaacc agacatcagg ttccactact atcttcttca gaaaagctat ccagatcaaa 120
 gcagaagccc aactctcttc tgctgcgttt caacaggggac tgcttacgtc cagatcatcc 180
 cagaggattc ctgtgttagc tctattagtt ctaccttctt tgagaactgc tacatagcta 240
 ccattcaata aaataaatct cagcgt 266

<210> 733
 <211> 679
 <212> DNA
 <213> Homo sapiens

<400> 733
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 ctgaatgtgg atggacagtc attctagggc agaagccatg gaaatccaag gactggactg 120
 aagaagatct agatgccgca tctctagggt atccgtctag gctatccggc tgagacaagg 180
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 aaaagaacat ataggggtgct tnttctgcaa gctgcaactg cctttcgcta cccaaaacc 600
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<210> 734
 <211> 375
 <212> DNA
 <213> Homo sapiens

<400> 734
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 atgcaccacc acacttggct gatttttcta ttaccatct ctaccaggcc aggctgggtct 180
 tgaactcccg acctcagggtg atccaccac ctcagcctcc caaaatgctg ggattaaagg 240
 cgtgagccac catgcccagc tgcctaacat ttcaaacaga agtttaatta tgaaaagaga 300
 attaaatggc aattttttacc agtaagacat aagcctaaca tcattgactg agagaagtaa 360
 atgctgtcaa aagat 375

<210> 735
 <211> 232
 <212> DNA
 <213> Homo sapiens

<400> 735
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 tgtttccttt cactgaccgt cccgccacga ccactcctgg gctgtaaatc ctcaattgtc 120
 cttgctgtat ttggaatgga gtccagttct aagggttcaag agttctaaga gtcctgaggg 180
 ctcattttct ctattgaaat agttcctgag taaaatctgc ttttatggct ct 232

<210> 736
 <211> 571
 <212> DNA
 <213> Homo sapiens

<400> 736
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 atctgttcca actgttccat ctgcactgtt tgtaccaatt ctcccatttc tgcattctga 180
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 atgaagttgg tcaatgttat tcccgatctt attaaaccan cccaatatta agtgngggta 480
 ggggcatttc ctaccctgtg nagactatat atcgcaaaaa ccatgcaaca tagggataag 540
 ttggcaaaag tnanntaaaa aagaatacac t 571

<210> 737
 <211> 468
 <212> DNA
 <213> Homo sapiens

<400> 737
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 agtgatcaag aactgaccaa gcttgetcat cccaagcccc cagccacaag caatagggga 120
 tcccggtaaa ggtttgccga cctaagctgg tngtgatgaa gccatcaaga tgatccctct 180
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 gaagccttgc cttgaaagat gccaccaagc acaagaagat gggccaaaac canaggagcc 300
 taagaagaag acangaatct caagttgatg atatcttgaa gccatccaag aattccagcc 360
 caccatcttg aaagttaaaa aagtcttgct caagggactc ttgagggtac aagggaaggg 420
 taatacatct ttgtatcaag ggaaattgga aagtgggggc ttcttttt 468

<210> 738
 <211> 146
 <212> DNA
 <213> Homo sapiens

<400> 738
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 atggacggta tctgaggatc ggtttagcgt atctggccgg agaaattggc aacatttgct 120
 acgaataaaa cccaagcgtt tccagc 146

<210> 739
 <211> 693
 <212> DNA
 <213> Homo sapiens

<400> 739
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 tcacagctgc tctgcaagcc tttgccctgc ttactagact gaaaatcatg ataaagctga 180
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 naactcggag ntagatggat gagattntgc cccacaaga cttacaaggt gtntgngaag 540
 gngtttctgn aagaaantan catttnaann canctgngng gagnaanaaa aaacccctnt 600
 gncatnngag nnggggcntn atccancccg gngngggggc aaannnaaca aacanngggc 660
 nnnngggaaaa gcnanntttt tttttaaaagt ttg 693

<210> 740
 <211> 181
 <212> DNA
 <213> Homo sapiens

<400> 740
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 gccattgat cttagacttc ccagcctcca gaactatgaa aaataaattt cttttgttta 180
 t 181

<210> 741
 <211> 689
 <212> DNA
 <213> Homo sapiens

<400> 741
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 aataccatga cctctaaaag ccagctaat ttagtgaata gagaaacaag ggtcctgcat 180
 accaatgaaa ctgctgacat cagctgatct gaatgaccca acaaaaagct tacatacaca 240
 aagaatgcag ttttcacatc ctaatcattt cattctcctt accctgacca atcaatgatc 300
 ccaatttgcc agtcccatac cctccacaat tttcttaaaa accccagatc agtatattcc 360
 ttggggagat ggattttggg gttttctgcc atctccttgc ttggctgtcc tgtgatcttt 420
 aaacactttt tctgctgcaa ccctgctgtc tcagtgtacg gatattgttac tgtgcagagg 480
 gcatatgaag ctgttggcct ataataattat gatggcatta gtggccttat aagaattaag 540
 aagagaagcc nggcacattc gcacgcacct gtagtcccag ctactcanga ngctgaggca 600
 ggaggattgc ttgancccca ggagttaaag gctgcagnng gctttganca tttntttgan 660
 nancactgn actcttacct gaacaacca 689

<210> 742
 <211> 401
 <212> DNA
 <213> Homo sapiens

<400> 742
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 gttcttacca ttgaaaaaga agtgctgagg ccaggcatgg tggctcacac ctgtaatccc 120
 agcacttttg gatgccgagg cagctggatc acttgtgggc aagagttcaa gaccagattg 180
 ggcgacatgg tgaacccccg tctctactac aaatacgaaa attagccatt gtggtggcac 240
 acgcctgtaa tcccagctac tcaggaggct gatgtgggag aactgaacc tggagggtga 300
 gattgcagtg agccaagatg gcgctactgt gctccagcct gggcaacaaa gcaacactat 360
 gttttaaata aataaataag tgctgagatc tcagaaaata c 401

<210> 743
 <211> 446
 <212> DNA
 <213> Homo sapiens

<400> 743
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 ccagatggcc tgaagtaagt gaagatccac aaaagaagtg aaaatagcct taactgatgg 120
 cattccacca ttgtgatttg tttctgcctc accctaactg atcaatgtac tttgaaatct 180
 cccacaccct taagaagggt ctttctaatt ctccccaccc ctgagaatgt actttgtgag 240
 atccaccctc tgcccgcgaaa acattgctct taactccacc gcctatccca aaacctatag 300
 gagctaataa taatccacca ccctttgctg actccttttt cggactcagc ccgcctgcac 360
 ccgggtgaaa taaacaacct tgctgntcac accaannnnn nnnnnnnnnn nnnnnnnnnn 420
 nngggggggg gggggggggg cctttt 446

<210> 744
 <211> 500
 <212> DNA
 <213> Homo sapiens

<400> 744
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 agtggaaagt gggcaaggcc aaggatcatg tacagaatgt gactgagcaa caggggggatc 120
 acttcagctg ggatgggaaa ggaaagcctc caggaggagt tgacatcgaa tcacagttga 180
 atcctaanaa gtcagtcttg caaagatcta ggaaagaaac agctaagttt ctaagggtgcc 240
 cagatttcat attgctcaaa cacacatgct ctacaaacaa tttatacaga caacggcaat 300
 catcaccagg atcctggaga cgagatacat cctcagctta ngaaagaaga cggggattaa 360
 agaagattaa aaggacceng gnccttcgga aaaacttttn aaaagtcctn nntttggnag 420
 gnaanagnna aataaaangg tcccatggna aatcctttcc caaatttant tntttcaaaa 480
 gactngcagg taaaagaaca 500

<210> 745
 <211> 495
 <212> DNA
 <213> Homo sapiens

<400> 745
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 tcaggagtgc gagaccagcc tggccaacat ggtgaaaccc catctctacc aaaaatacaa 120
 gaattggccg agcgtagtgg cccacgcctg taagtccaac tactcaggag gctgaggcgg 180
 gagaatagct tgaacctggg agacaaaggc tacagtgagc tgagattgtg ccactgtact 240
 ccagcatggg cgacagagtg agaccctgtc ccaaaaaaca aaacaaaaca aaacaaaaca 300
 agacttattt caatggactt gtcccctctg tgtcatcatt caatcatctc tgtaagttaa 360
 aatcctgnng gnggggacaa cccnaaaagg gggggaangg ttttaatttt tnnccctttg 420
 aaagtancaa aaaggggaca cctgncantg ggggaaggat ttcaaaaaag ttccccatgc 480
 ccttcatgaa gtttt 495

<210> 746
 <211> 469
 <212> DNA
 <213> Homo sapiens

<400> 746
 gctcttcccc agtctggagt acagtagggt gttcttggct cactgaaacc tctacctcct 60
 gggtttaagc aatttctcctg cctcagccac atggagtatt gctctgtggc ccaggctgga 120
 gtacaatggc gcgatcttgg ttcacagtaa ctccgcctc ctgggttcaa gtgattcccc 180
 tgccctagct tcccaattct ggaggctgga agtccacgat caagggtgcca gcatggtcag 240
 tttcttgtcc tggtcatag gccgccccca tcttgccatc ttcacaaaga agagggtgtac 300
 tcacgtgacc tctcctttgt gcacaagagg agagagttag caagtgaact cttggtgact 360
 cccctacaag gacactaacc ctattnttgg aggggcccc ccctgggaac tnnnttnaac 420
 ntaaatacct natttaaac tggctccaaa aacagcccat tggactttg 469

<210> 747
 <211> 469
 <212> DNA
 <213> Homo sapiens

<400> 747
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 tgccaacttt atgtgtaaag aagctaactc ctgccaacat cgtggctgaa tgaacagctg 120
 ggactatgct taaccattc ccagcttata aaagcccat ggcagctgca gtgaagcatc 180
 agattatgtg atgcaacaaa attcaaatat gaaaaccatc ttggaggccg ggcgcggtgg 240
 ctcatgcctt taatcccagc actttgggag gccgaggcac ggtgcctcac acctgtaatc 300
 ccagcacttt aggaggctga ggcggggcgga tcacctgagg tgcagagtgc gagaccagcc 360
 tggccaacat gaanaaactc catttttttc ttaaatacca aaaatttncc cgccttgggg 420
 nncatgcctt gtattccac ntntcggaa ggctgaggca ggaaaattg 469

<210> 748
 <211> 79
 <212> DNA
 <213> Homo sapiens

<400> 748
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 aaacanaatt taaaaagcg 79

<210> 749
 <211> 251
 <212> DNA
 <213> Homo sapiens

<400> 749
 tcccccaacc ttggaaatng ccaaccggcn ccaancaatt ggntttanct tgcaaccctc 60
 caaatttctt ggggcttcaa aanaccttt tttttaaac ttccccaanc aagctggggg 120
 aactacaagg cgggggcccnc cactttgaaa cctcgggctt aatantggga aggtaattta 180
 ctaaaagtatc ttgnaaaaat ccttaatcca atattaaggg gaaaaataaa aggggttttt 240
 taaaatgggt t 251

<210> 750
 <211> 487
 <212> DNA
 <213> Homo sapiens

<400> 750
 gaggaaagaa ggcggaagca cgaacggctt aattaggaag nccnnncctt anttggacct 60
 cccactgga aacacccacn ttgaacaact attcacacaa agaagcacct tngtaagaac 120
 caaaaatcag gngccagaca gaaagnnatn tntntgctna actganacaa atgcacnatt 180
 cattgagcca gactaaggca taagngacta ttctctatg ttccccaaca tgtaaattgt 240
 ggattcaggg aaaggctgat tgaagagtca ttaagaatgt agcatttttg ngttttattt 300
 cctggaacca caccttatct anctggaact gtccctccc cgcccncca attctgncnt 360
 gttttgagag ntccctgcctt tctggaccaa attnatnggc cttttnnacc canggggggg 420
 gngggggaaa atttccttaa aagggggaaa agggagcggg nccctgccnn cttgagcaca 480
 tgttgcc 487

<210> 751
 <211> 148
 <212> DNA
 <213> Homo sapiens

<400> 751
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 agccctcacc agacacacaaa tcggccagcc cattgatctt agacttccca gcctccagaa 120
 ctatgaaaaa taaatttctt ttgtttat 148

<210> 752
<211> 455
<212> DNA
<213> Homo sapiens

<400> 752
cttcagagg ctgcctgcat cacttgccctt ggggccctt cctccatctt caacaggagg 60
ttgagttcct catcacataa catcactcgg accttgctct ctgcctcgct cttccacttc 120
taaaagcccc agtgattaca ctggactcat ccaaataacc caggatcatc atctcctctc 180
caggatcttg ttctgcggcc caggctggag tgcagtggct tgtggaaaac tgaactcatc 240
tttataattc cttttttatt gagacttacc tagaataatt aacatttgaa ttttaattaaa 300
aacagttctt ttgtcaaact taaccgaatt ctccaatact tttgtaggtc accttcttta 360
ataacaatca gaggaagaat tttctgactc tttaaaaaaa aganctaaaa aaanaancctt 420
tatngccanc acataangcn ttttttttcg ggccc 455

<210> 753
<211> 433
<212> DNA
<213> Homo sapiens

<400> 753
atgttgcttg tattagtcca ttttcacact gctgatgaag gcatacccga gactgggaag 60
aaaaggagg ttaatggact tacagttcca cgtggctggg gaggcctcac aatcatatca 120
gaaggtcaca gctgatgcaa gaggcaggct cccacagcct tgagcagctc tgccccctgtg 180
gctttgcagg gtatagctcc attcctgact gctttcgtgg gctgggtgtg catgtctgtg 240
gctttttccag gcacacagtg caagttgttg gaagatctac cattctagcg tctggaggat 300
gggtggccctc ttctcacagc tccaaattat atgctggata tacaagagac tcatgaccca 360
aactgggaca acaggaatgg ctttctggga naaaanaaat ttgggncccc aaccngaaa 420
aaaaaaaaacc cgg 433

<210> 754
<211> 74
<212> DNA
<213> Homo sapiens

<400> 754
atacctcaaa agggagttn tttaatgtct aacaacacag aaggaaataa aagtgcctgt 60
gattaaagtg cttt 74

<210> 755
<211> 390
<212> DNA
<213> Homo sapiens

<400> 755
atgcatttgt cattgaagaa aaacatctta caaaggaagt ttaaaagaga acccagatga 60
atatttcttc agatgaacca caaataagtt ctgatttcaa catgttctac aactccccag 120
agctgagaag ctaaagacgg ttctacaata tcatattcca aaggcatcac agggtttagc 180
tgctaattgca ataaagtgg tttgtcttg gaagcacgca acatcatgaa taacattgtc 240
atctggaaac aatgagccaa taggcacat tttgtgtgtg aaccgagcag gcttgcttga 300
ttgtggatgc agatatgcc accctacgta agttgacatt ttgtacagac tagaagaaat 360
gtgtggtatg agatcaataa agaagtaact 390

<210> 756
<211> 149
<212> DNA
<213> Homo sapiens

<400> 756
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cagccctcac cagacaccaa atcgccagc ccattgatct tagacttccc agcctccaga 120
actatgaaaa ataaatttct ttcgtttat 149

<210> 757
<211> 447
<212> DNA
<213> Homo sapiens

<400> 757
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taatccacaa actgaaaaaa tgagattgaa tgaattcctc tttcaaaggc aaagaaaagt 120
taaacagtgg cttctacaag aaaggtgaac tccttataaa tgaaaaaatg acctttgctg 180
catttgaggt gttgtctgtc aacattatcc gtcccttttg agggtagtgt catctgataa 240
catttttgag tcatgggaaa tttccggaaa cagaacagca cacagaaagg actgacctat 300
ttctcttaga gtaacatcct cgtggctcat ccacgagaaa ggaccttgaa accttgaagt 360
attctgtggn atcctgtgng tacacagntc tttttttaa anaactttaa nacctttacc 420
ttngngggct tgncttttaa gggaaaa 447

<210> 758
<211> 472
<212> DNA
<213> Homo sapiens

<400> 758
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tctgactgcc tccaggcata cagccagaac tcaactgtgtc tggacgggcc tcataactaca 120
gcctccacc cttccaacct cctctgcgac agactgtggc tatgttcttc ctgctgaaca 180
ccacctctgc cctgatggct cctgcaactt ggacaaagtg acaagggtgaa gttcaggagg 240
ctctgtgttg ctgaagaatt ggccttgagg ttatttcatg cctgaatgac cagtggttta 300
ctaccagaat catctggctt cctgcaagga agatttgggg cttggtatct gttccctct 360
cagactcagc agacacctaa ccaccgctga aagtcactga aatcggatnt ttnccttcnc 420
aaaaanggnn tcttnanntt tggattcncc aaagggacag aggaaaaggg gg 472

<210> 759
<211> 423
<212> DNA
<213> Homo sapiens

<400> 759
ggatacacca ggcagaatgg agaaactgag acatcctggc aaatttgatg aggtcccaa 60
ggtctctaatt ttggaatacg tcctctagca acgacctgag gcttaacatc tgctgattct 120
gtgctactgt aagatagtgc ttagtttact gggcttgaaa agcagggttc tcttttaacc 180
tctgggattt cttaacagtt gctaccgggtg gtatgatcac ctgatgatgt acttttagcc 240
aactgtgtgt catcaatagg ggtttgtctg ttttaaagaa cattcaaaga aaaggaatgg 300
ctagtcatat ataggagatc ttgttagctg ggatttaagg gagacttaga gaaaagctaa 360
cgggaaaagg acgtgcattg tggangaaag gggggcngct gtnaccnttt taaaaaccct 420
ttt 423

<210> 760
<211> 465
<212> DNA
<213> Homo sapiens

<400> 760
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nactnnaact ccgtngccta cactggagng cagggnggat catagntnac tgcagcctcn 120
aactcngag ctnaagngat cctctngctt naccttcttg antagctggg actacaggct 180
ngggncacca tacctactat ttttnatttt ttatgganac aggcctntcan tatgttgacn 240
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ggattacagg cntgaccac ctcgtntagg caaaaaacag ctnaatgggt ccagtccttc 360
agtctgtctc ctggccaaca ntggaccttt naaagggttaa ccaagttctt tttcagggcc 420
gttggnaaaa aaaccctta tngttggaag ccaaaaaagg ggggtt 465

<210> 761
<211> 427

<212> DNA
<213> Homo sapiens

<400> 761
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atagccatga agacacaacc acagccttca tggattctc cactcctgat cttccagctt 120
aatatctgga ctaacaagaa acttaggact ctgaccagat gtaaaattaa catgttttgg 180
aagcggcaga gtaatgcca accaactttt cccaacatg gggcataaac attgtaacat 240
ccagtccaaa tgtcaatcca gttttctcag agataactgc tctaataataa gaatgtgtgc 300
ttgtacagag tttgtgatgt gaatatgtaa attttattta tgccataatc tctactacagt 360
acatcaaaaca gagatgcaga atgntacaaa ttcttcaact anacagnttn gggcagggtt 420
cacaac 427

<210> 762
<211> 435
<212> DNA
<213> Homo sapiens

<400> 762
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ccgggttcag gctattctca tgcctcagcc tcctgagtag ctgggactac agttcacagc 120
cgcggtggcc tccagcctga ggattctcct gatacatgct actaagggt cactgtgtct 180
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tgcctactc cctgttcaaa gccactcagc cataaaggaa taaaatagga agaagcgaat 300
ggcaatggag atgcaaaaag tgtcaacaat attttgggaag acataagttg tttggacaaa 360
agacttcgaa tttaacgtca gctttctcca ttctgctgag nggctattcc tggagaaaac 420
cattaaagaa taatt 435

<210> 763
<211> 202
<212> DNA
<213> Homo sapiens

<400> 763
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agatcattcc ttccatcca gaagaccctt catgcacctt ccagtcacac actccctact 120
tcaagacagc cactgttctg gtttctttca tcaaagataa gttttccag ttgtagacct 180
tcaaataaat gaaatcatac ag 202

<210> 764
<211> 292
<212> DNA
<213> Homo sapiens

<400> 764
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ggaccacatt tgctcaccag ctggcccaag accagactgg gcaacatggg tcatcctcct 120
ctaagattcc aggaccatga tcatcctct attgctactt cttagatcag cttgtaatgt 180
ccatctcccc caccagactg cgtctccagc atctctgagt cccagggcc tggcctgggg 240
cttgctacat ggtgggtgct cagtaactgt gaggtaaata aatgaatgaa tt 292

<210> 765
<211> 121
<212> DNA
<213> Homo sapiens

<400> 765
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agtgtacctg aaattaaaat caaattgtct gattccttca aaaaaaaaaa aaaaaaaagg 120
g 121

<210> 766

<211> 528
 <212> DNA
 <213> Homo sapiens

<400> 766
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 tactactgtg ggcggcgngc ntcaggctga aaccttctgg cttntttgcg ggactccttc 180
 tggntgggca attgcagaca cttgttgagc aaatcatcaa ggggagcaag caagtgtaca 240
 ggtacaccta acgcacgcat gcccaccttg cgtgcctcgt gtgtacgcgt gcgtgctcgc 300
 ttcatgtgcy aagcatcgtg gcggggctcg cctccaagct tcagcgaagc ctccgtgccc 360
 tgccgccgtg cgttgctcat gtgccgtgcy ttgtgcgggc ttcacttttc gggcttcaac 420
 gcagttttga aagaagcaga agccttggaa ccaanangaa tctcaaagta tgtggtngct 480
 tgcaaaaccc tttcttcgct tggcctgnaa naaaatccaa gggactct 528

<210> 767
 <211> 309
 <212> DNA
 <213> Homo sapiens

<400> 767
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 gaaccaggac tcccatagtc tctctctggc ctctgtgctg tctggcaaac agccgtgctg 120
 ccttgccctc gaaccctgga gcctgcctca ccaggagaca gaatcaagga caggggcctc 180
 gccttggcac caggtggccc ttcgtgtgcy tacataaaca cttttcccag gatatgaata 240
 aggtccacag gcactcggga ggaatgggtg tgttgcgatt tacggtcaag gagaccagga 300
 tgtcattgc 309

<210> 768
 <211> 384
 <212> DNA
 <213> Homo sapiens

<400> 768
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 aatgaaaact ggaattgagc catgtggaaa gatggaccag gccacaagaa ggtcttcggg 120
 acaaccctga aagagggtgac ccaggagagc agagtccagg gtcccttcaa atcactgctg 180
 gcaggagcaa agatcaagat aggtgaaacc tgatattcaa atgcaggcgt ggaaaaagaa 240
 taggcacagt ggttcatata tgtaattctca gagctttggg aggccgagggc aggaggatcg 300
 tttgaggcca agatttcaag gctacagtga gctatgattg caccactgca ctccagcctg 360
 ggtgacagag caagactcgg tctc 384

<210> 769
 <211> 368
 <212> DNA
 <213> Homo sapiens

<400> 769
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 tattcctaca gcctcacaga atcctggaca caaagaaaga cttaacaggg ttcattcatt 120
 cctgaaccaa agcggctgaa cgatgtcaac aggaccagag aggtctacag aacgccatat 180
 tttcttctac atctcttttt ttaaaaaatct tatttcaatg gagtcaaact caataagggtg 240
 aattaaagga aaaagagctg acccaaacaa acaagcaaac agaaaccttt tctgtcctgt 300
 aatgttttag cgcaagataa gaagtgcaaa tanagaagtt taaaaagcta attaaagggg 360
 tttgtttg 368

<210> 770
 <211> 439
 <212> DNA
 <213> Homo sapiens

<400> 770

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cacgtttatc	ttcgacttcc	cggtcgtcag	aactgtcatg	catgctgtta	ctgatctgct	120
atctcatctt	gtcggttggc	atatggcagc	agagccaggc	ctgcagctcc	tccagatcct	180
gatggatctc	cttcagcatc	tcagaagcct	agattaggta	catgtaccag	ctgtgcagct	240
ctacctacat	ggtaggttaag	cctttccata	aaagtgaaga	aagccccgta	tgaatttttt	300
caatgaatca	agactctgta	taaaatcagt	tggctaaaag	gagagcacat	ctgctcactt	360
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caaaattgag	acaaggaac					439

<210> 771
 <211> 211
 <212> DNA
 <213> Homo sapiens

<400> 771

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gacttcctgg	gctcaagtag	atcctcccac	ctcagcctcc	cacatagctg	gaactacaga		120
gtttactcca	ttgctgactc	ctcattgaac	actttgctgc	accaacccaa	ccaactcaga		180
gggtagaga	attgtttgag	acccctccta	c				211

<210> 772
 <211> 477
 <212> DNA
 <213> Homo sapiens

<400> 772

gtcccatcgc	attacaggag	acgtcagaaa	ctgtaacgcg	catggtcttc	tcccgctctg	60
gaattttcat	cggatgatcat	gactgccacc	cctaccgcgc	aatttcacaa	gtgggctctt	120
ataatcccac	aacagccctc	tgacagaggc	actgttatca	ccccgcttta	aaggagagga	180
agcggcgggg	caccgtggct	cacacctgta	atcgcagcac	ttcgggaggc	caaggtgggc	240
ggatcacgag	gtcaggagac	tgagaccatc	ctggctaaca	cagtgaacc	ccgtctctac	300
taaaaataca	aaaaaaagtt	taggcaggcg	tgatgggaca	ccccctgtag	tccaactac	360
tcgggaaact	gaggcaagag	aattgctgga	acccgaaagg	ggcaanggtt	gcagtgagcc	420
gaaaatcacg	tcatgctctc	tagccctggg	gacagaacaa	gacttttgtc	tcaaaaa	477

<210> 773
 <211> 567
 <212> DNA
 <213> Homo sapiens

<400> 773

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ganggcttnt	gccttnttca	tggtgacctt	tttgagcaag	ttcagcctgg	ttaagtccaa	180
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cccccaaate	ttcacaaagg	aaaaaaaaaac	naactcccag	caaaagccct	tttttggcnt	360
ngnacctggc	tccttttgaa	aaccagtggg	gccntgcca	ngaantncc	ttgccccctt	420
gtgccccgcg	ccttacnact	tcnatcccc	accttacctt	ttggteccac	ttcttggnc	480
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<210> 774
 <211> 294
 <212> DNA
 <213> Homo sapiens

<400> 774

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gcctgggttaa	gtccaagctg	aattggcctc	cgtggccta	tatngaattc	tatatgggcc	180
ngctattggg	ccaaattctt	ttggcttttt	aaccctggga	aaggaaaata	acttcaataa	240

aggcccnccn tntngtntttt aaccccccat tcttttnana aagaaaaaaa acgg 294

<210> 775
<211> 217
<212> DNA
<213> Homo sapiens

<400> 775
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gctggctaga atgaaaagac aaacattccc ttcaaacagt atgccattgc ctaataattt 180
tgcaagctca aatgaaatcc aaccaaattc agaattt 217

<210> 776
<211> 191
<212> DNA
<213> Homo sapiens

<400> 776
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ctgctgggtg aacaccctcg ccaaagaagg agactgcaga aatcctcctt gatggatatca 120
gctcactctc tcttaaattgt tcatccactt ttaattattt acaactaata aaacatgtaa 180
taacacggtc c 191

<210> 777
<211> 284
<212> DNA
<213> Homo sapiens

<400> 777
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tctgaacagc aggtctcaact gtctaaaaca ctttttctaa agcatgaagg aggtctgatgg 120
ccatgtcaac gtttttctca agatcaagga atcaatcctt tacgttgtgt aatgaaagga 180
ttcattctgt tgatttcccc catacaaatt atgtgttcca cagatgaatt tctgcttcaa 240
cctctcggga ggcttaataa aaggccttga ggctttgaaa tgac 284

<210> 778
<211> 102
<212> DNA
<213> Homo sapiens

<400> 778
ggacaaaagct tgggcccgcna gntctccctt tgggcacccc ccaccctcct tggnacaaang 60
cctgatgtnn agtcttgggt gcgactcata ccggcctggg aa 102

<210> 779
<211> 369
<212> DNA
<213> Homo sapiens

<400> 779
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tctcctgggt tctgcccatt ctgcgcggcc tctgctctgc tcaaatggct acttaccttg 120
aagagcttcc cctctaggct ctacctgaac ctactctct tgcggaatca gaagataaat 180
catttccaca caatatccga aaaggatgtc actctttcta ctatgtattg tggattctaa 240
gacacacacg gtttttcaca cttggacatc tctgaagctg gggatgtatc ttataatcca 300
agttgctcag ttataattag cattttttct ttctcagtgg tatataaaac aatgatacaa 360
cttcaaaag 369

<210> 780
<211> 174
<212> DNA

<213> Homo sapiens

<400> 780

ggacatctga	atcaagctat	gtaaaggcaa	aacctacctc	atgctcagag	actcagcatc	60
ctcactgaat	gcgtcatcac	gcctgatgaa	gcacaagaga	aaacaagaga	aactgaagat	120
catctatatt	tagtgctaga	aaagaatcac	aaataaatat	taaaatacac	actc	174

<210> 781

<211> 359

<212> DNA

<213> Homo sapiens

<400> 781

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ggaaaaanaa	actttncntt	cattggantt	ggaatggann	agggcggtca	gtttgaattt	120
gcaggggnctt	gccttgccgc	ccatgggaaa	gggcttgccg	aggactggaa	nctaccaagg	180
agggaggcag	aggacaccgg	atgtgggtga	aaatacgggc	cctaacacat	cattttganc	240
cttggattca	cccctgcctg	gccttgaaac	caatacatta	ggccccaat	atattattng	300
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<210> 782

<211> 194

<212> DNA

<213> Homo sapiens

<400> 782

tgggatcaaa	gaaagcacca	gtttctgaag	acattttaata	cctgaggnc	caagactagc	60
acaaacttca	tttttaaaac	aatctacgtt	gccttggttt	atgtntaaga	tccaaangtg	120
ctagacnagt	tctttattgt	caatctacca	tgtgtgcgac	cancaacnnt	taaggatgac	180
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<210> 783

<211> 390

<212> DNA

<213> Homo sapiens

<400> 783

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gcaaattgaa	ggtttgccga	aaccctgcat	ggaggaagt	tatcgccgcc	attttttcaa	180
cagcatgcgc	tcactttgtg	tcttttttca	cattccctca	aagagggaaa	cagcacagga	240
ctgggcagt	caatgcttcc	atagtgcacc	tcattgcatg	gaccgttccc	ctgaggctgg	300
tgggcaagcc	agcgccaagc	aaccactct	gtgatcaacc	cactcccat	gggaagtctt	360
gcccttggtg	gcaagtgttt	ccatagtaaa				390

<210> 784

<211> 399

<212> DNA

<213> Homo sapiens

<400> 784

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cctnagaggc	cacaaaccag	ggaacgccan	gggcggctga	agctaccaga	agagccagga	120
gaggaaccag	ggatgggttc	tttgcttac	agccctcaga	ggcgccaacc	ccgctgacac	180
ctggatctcc	attcctagcc	tccagaactg	tgcaagagta	ccgtttctgc	ctctttctgt	240
aggaaaccac	ccaggggtgtg	gtgatttgta	tggcagcccc	cgacactctg	gcaagctcca	300
tcccagcgte	ccctcctccc	atcagctgtg	acctcatgtt	cctctcctgg	actctgttgg	360
actcatggca	agaatatctt	aataaacgca	tgttaaagc			399

<210> 785

<211> 117

<212> DNA

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<213> Homo sapiens

<400> 785
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acgtagaaaag aaatcttagc agggatttag tgcaagaaga agaacagttg atggaag 117

<210> 786
<211> 262
<212> DNA
<213> Homo sapiens

<400> 786
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gggctggaga cccaatgcag gaggggaagca gcaggagttt ctgggaggat ggcagagggga 120
gatgacggga taactgcact ccaggtggca aaagcaaccc atcctgacag gacagtgtga 180
cccaagagcc atgcacagta aggggtatca tcgccatgcc ctctgcctca tgcaatctta 240
aataaatatg aatatattca ac 262

<210> 787
<211> 513
<212> DNA
<213> Homo sapiens

<400> 787
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cacacanaan naagncnatn attnacaggg cattttacta atnanangcc atgctggggn 120
ngcagnggtg cantttngnc tnactgaann ctctgantgg nggggtcaac gatccctccc 180
acctcagcct ccgagtagc tgggactaca gaaattattc ctttgcaggt ggtgcaaagg 240
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gcaaccctgc ggttccccgc tcaggaggag tcacctctt gatgctgaat ttagcacgga 360
cacctgatgg gcacagtga ctgcagccca gagctcctga gctcaagcca tcctcctgcc 420
tcaacctnca agtagccagg accacaggcc ccccccttgn ggggaagaaa taccaggtgc 480
gcatgcttca anaaaaagcc gctgaggacc cgg 513

<210> 788
<211> 284
<212> DNA
<213> Homo sapiens

<400> 788
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ccagatggac gctcagacac ggaagggtcca gggagatgcg tggatctgcc gccatgtggg 120
tggaccaagc tgttgctcc attggaagcc tctgtccggt gccacatcct ccctgggttc 180
cagtccccac ctgccagggt gacaattagg caatttgatt tactaaggag aagacaaaaga 240
aagaaaagga gaaatatttc aagaaaaaaa agactgtgaa aaag 284

<210> 789
<211> 400
<212> DNA
<213> Homo sapiens

<400> 789
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gaatgccnca canngatgaa ggcanngatg gcacttaciaa ggccaagaaa tgtcaaagac 120
tgcttgcaaa ccaccagaag ctaagagcaa aagcacaataa gcgattctct cccacagccc 180
tcagaaggaa ccaaccctac agacatcttg atctcaggtg tggagcctcc agaactgtaa 240
gacaacaaat atctgctgtt ctaagctact tagcttgtga taatttgtca aggcaaccct 300
aggaaataaa tacagggaac ttcaaaaaaa aaaaggcngg ngnggncnnt naanttnngn 360
nttancnagn cngantttgt tnaaaagggg gggggggggg 400

<210> 790
<211> 432

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<212> DNA
<213> Homo sapiens

<400> 790
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gcagccaaat gctccacata atcctgtcct ggattcttct cctacaaagg aaggggtctg 180
aggattaggt ggtagtactg aatcaaggaa ctatcatctc ctattgtgct gtaggatctt 240
ggcagccaga cccagctcc cactttccct gaaagctccc tttaatgaag ctgaacgctg 300
tcccagcaat tccctccaca gaagacctac tgtcaccacc tctggagggg caattcctgg 360
aggaaccaag tcagccaatc gaaggtcctg aataagcaaa aactaagtaa ataaattacc 420
atctcgaaag tg 432

<210> 791
<211> 520
<212> DNA
<213> Homo sapiens

<400> 791
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tccaaggagc aggttcaagc acatgggtgg gaaaagaatg aagctgtttt ctccttgtgc 120
cctccaaggt tctcctctta caatatacta cttacctcgt ttctcctgga attctcaata 180
tctgtctagc ccagcaggtt gaaagatgtc atcagcacgg tgactgggctg agatcaaatc 240
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gattcactta tctgtacgat gtggataatc gtaggatcta cctcatggag ctattgngaa 360
gattaaccag ccacaaagat cttaaatacag ggtctagctc atggtaagtg ctcaatcaat 420
gatagcaatt tatcatcatn cctcttcant ggaanaccct gatgttcac ccaaaaattta 480
atgctcatta acctctaaag aaaaanggaa aggagaaaga 520

<210> 792
<211> 350
<212> DNA
<213> Homo sapiens

<400> 792
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tctactgtcc atggggcgga ggtggagctg attcatacag aatttgagaa tcttgccctg 120
cttaccatct aaagatgact caaaagcttc ttacatccaa atgaaacgct tcacttcggt 180
cgtaaagaat gtggcatctt taggggtgcc ttcacagtga cactatgaaa acctggatga 240
cagcaacggc ggtggcagca aagtaaagca gcaaagtaaa aaaaaatcct gttttgtaat 300
ctccctttgt caaatcacc acctaactgg aaaataaatt cttaaacatc 350

<210> 793
<211> 409
<212> DNA
<213> Homo sapiens

<400> 793
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ggctttgaga aaaagatgca ggaaaactca agacaggatg ccatgctgct tttggacatt 120
acaaaaaaca gcagaagagg gagccccgca aaggggcact ggtatgacct ttatgatgga 180
gaagaaagtg attacccctt ttctgcctct gcagccacaa aacagatcaa aacctatttc 240
agaacaagct aacagactct aagaaaatta tgtaagacat gaaagtatgt gaattgttac 300
agcaatcaga aaagaattaa aaaatttaaa aatgcatttt aggagcaaag actaaacaac 360
aaataaacac aacatgtaat gccctaagaa aaacagaggg gtgaaaatg 409

<210> 794
<211> 276
<212> DNA
<213> Homo sapiens

<400> 794

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atgagccata	tnctnttcat	acngacantn	tatnggtgag	ggaaaggcaa	catttggaag	120
gactggacnt	tttaccttaa	ggggatttta	aaaaatcacc	acaatggact	attatcacia	180
cntnnggattc	aaaatttatg	gattttccctt	ccttttgggtt	acccaaaagg	tggacttngg	240
aagaaaaaga	ngaagttggg	agcttaaaat	aaaccg			276

<210> 795
 <211> 510
 <212> DNA
 <213> Homo sapiens

<400> 795						
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caggcaccca	ccttcgtgcc	cagctaattt	tttgtttgta	ttttttaga	gaccgggttt	180
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tcccaaagtg	ctgggatgac	aggcttcagc	caccgtgccc	agccaagatc	aagttgttgt	300
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<210> 796
 <211> 255
 <212> DNA
 <213> Homo sapiens

<400> 796						
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aatncctttc	tngtttnggc	cntaaccn	gaancanant	ngncntgan	cntngtaaat	180
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<210> 797
 <211> 450
 <212> DNA
 <213> Homo sapiens

<400> 797						
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cttggtggtca	agagttcaag	accagattgg	gcgacatgat	gaaaccccgt	ctctactaca	180
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atgtgggaga	actgaaccct	ggaggtggag	attgcagtga	gccaagatgg	cgctactgtg	300
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ccnggntgan	gttttttttaa	agggggggggg				450

<210> 798
 <211> 206
 <212> DNA
 <213> Homo sapiens

<400> 798						
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tgacctcccc	gactaagggtg	tttctcccac	ctagcttgat	gactttatct	gtgtactttt	120
ctgtattcca	aatcctttgt	aatgactatt	gtaaaggatt	acattatgga	gctcaattat	180
ttaggaaata	aatccctcag	acactt				206

<210> 799
 <211> 571

<212> DNA
<213> Homo sapiens

<400> 799
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aagctnngang tgnccacggg aggatcttaa ctacttgaa nctttngctt ccgggttcaa 120
gcgaatcttn nacctcaacc tnccgagtag ctgggattac agacgcccc cttatgctc 180
ggntaatctt ccganttttg gaaaaaagg gnttcacat tttggccagg ctggnccttg 240
actcctgacc tcangtgatt cgcctgcctt ggctctttaa aagtgcctgg aatacaggcg 300
tgagccaccg ngcccaaccc aaacgtttat tttctaattt acaggtcagg gggaaagaaa 360
gntttatctt ggtttgcttt ttcctctgag gaactgaatg gtttctcctt tctgaattta 420
aaggaaaata acttactggg ggtctctttt ttgacctcaa aatttgctan cccagtaagn 480
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ttcttggggg ctactgggct taacctcat g 571

<210> 800
<211> 204
<212> DNA
<213> Homo sapiens

<400> 800
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gttgaaaagg caaaaaactg gaggtaaaga agtctacata ggaggtcaag gactcctttt 120
ctggattatc ctaattaact attaagggag aagaattaga gacctagatc ataacagata 180
attcattaaa ctagaacttg gaag 204

<210> 801
<211> 528
<212> DNA
<213> Homo sapiens

<400> 801
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gggtgacgaaa atgaatccaa ctaaaaatac ttgcttcctg agtcttcctt acaattagga 120
gtagccttgt aaccttgctt agccgacaag aggaatgtcg agatttgacg ggagttttgc 180
tccgttgccc agactggagt acagtggcac gatctcagct cactgcaacc tccaactccc 240
agattcaaga gattcctgtg tctcagcctc cgaagaagct gggattacag gcatgcaaca 300
ccaagcctgg ctaacttttg tatttttagt agagacagag tttcaccatg ttgcccaggc 360
tggtctcgaa ctctagggg cctcaagtgg tccacctgcc ttggccttcc gaagtggctg 420
gggttacagg catgagccac cacgcccggc caagacaata acatttttaa tcctacatca 480
aaactttaca tttcaaaaaa tgcattttct angctgagac atttttat 528

<210> 802
<211> 468
<212> DNA
<213> Homo sapiens

<400> 802
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caggcatggg ggctcacacc tgtaatccca gcactttggg atgccgaggc agctggatca 120
cttgtgggtc agagttcaag accagattgg gcgacatgat gaaaccccgct ctctactaca 180
aatacgaaaa ttagccattg tgggtggcaca cgctgtaat cccagctact caggaggctg 240
atgtggggaga actgaacctt ggagngggag attgcagtga gccaaagatgg cgctactgtg 300
ctccancctg ggcaacaaan caacactatg ttttaaataa ataaataagt gctgagatct 360
cagaaaattc cennnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnggggggc cgggggncct 420
ttttnttttt natttaaacc ggggttanttt tttaaaaagg ggggggggg 468

<210> 803
<211> 212
<212> DNA
<213> Homo sapiens

<400> 803
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tgaggacctt cccnaagggc agantctggg ggcagctccc ttgtccaatc tgcagaacta 180
tgagccaaat aaaccatttt tctttataaa tt 212

<210> 804
<211> 323
<212> DNA
<213> Homo sapiens

<400> 804
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gcancccttt catgttggac ttncagtcn tnagaacctt gagccaanta aacttctatt 120
gcttatnaac tactannatc tcaggcatct tggtaccgga gcacncantg gtcttttnaca 180
tttaataatg tgaaatgcnt tggagtntgc tttgtacatg atnagcactg antaaatatt 240
anagatcctt angngggganc nntncattgn tacctctctt ataataattt aaaagttata 300
aaacccaaaa gccttcgaac tgt 323

<210> 805
<211> 477
<212> DNA
<213> Homo sapiens

<400> 805
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ggcgcacacc aacacaccca gctaattttt gtatttttag taaagacggg gtttcaccat 180
gttgggcagg atggtctcga tctcttgacc tcgtgaccca cccaccttgg cctcccaaag 240
tgcagggatt ataggtgtga gccgctgtgc ccagccgccc ctgaatgtat ttcttaccac 300
caatctgttc agtcattact attccttccc cctttcctaa gtaccatggg aaatgaagca 360
taaagcactc aaagtccaag gaaaaggcaa cattcaggat cagttncaga atgtctgnct 420
ctttcagacc catgctccca ccagttgggc atgcattctt caacttggat gcctatg 477

<210> 806
<211> 324
<212> DNA
<213> Homo sapiens

<400> 806
tttttttcta gtgttcaaag gccggcggat catgaggtca ggagttcgag accagcctga 60
ccaacatggt gaaaccccg tttcactaaa aatacaaaaa ttagcctggc atggtggcgc 120
gcacctgtaa tcccacttac tcaggcggct gaggcagaag aatcgcttga acccgggagg 180
cggaggttgc agcgagccaa gatcacacca ctgcactcca gcctggggcga cagagcaaga 240
ctccgtctca aaaaagaaaa aaaaagaatt ttttttaaaa cttcaataaa aacttaggtc 300
ccattaaatg gtaaatctgg ctcc 324

<210> 807
<211> 288
<212> DNA
<213> Homo sapiens

<400> 807
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aactcggttg ttcattctgg tggaagctga tctctccctc cttggcagcc tgtgtccccg 180
tgatgcgttt tgtaaacttg cagctacttt gatcttgtct tggattgtac ttgggtctta 240
ccttaaccct tgggtccagat ggcaaatacg gacagccccc gtgagctc 288

<210> 808
<211> 277
<212> DNA

<213> Homo sapiens

<400> 808

gactgcccc	gtctacacaa	atccccttcct	tctagcagac	tgagtcacac	aagaataagg	60
agagtgaagt	ctacatgttg	gggactagag	tgaatcgaag	cttttctgga	aggagctccg	120
tgaacctggc	tttgagaatc	tataaaaaaac	aagccaagta	aaatgtccaa	gaggtagtgg	180
tgctgaagaa	tccaagaact	tttcgaaata	cttaacaaaa	ctatcacaaa	tgtattccaa	240
taaaacattt	tgcatagca	nannaaaacg	aaaaaat			277

<210> 809

<211> 418

<212> DNA

<213> Homo sapiens

<400> 809

gaaaagcacc	aaggatggag	cagcctggcc	tttgccccat	gctgggttcct	gcagggtgcaa	60
agggagaact	actgctaata	ggacagagaa	gggtccatgct	gcacatgggtg	cagagatcaa	120
caggtccttg	gcctccagag	ctgtcagcct	agtgtctttc	atgcgcctta	aaagtgaatc	180
agagagaaaa	caaagaaggg	tactcttga	gatcttcagt	ccctggcatt	gctggaagta	240
aatatgaagc	atctgggaga	aacagagact	atattcaaaa	gtttacataa	aactgaacag	300
aggagggagg	cggagagggg	tgactggtga	tggtccagag	taaaaaaaga	aaaagaatcc	360
ttttcaata	tattggagaa	ctcctactac	tcattcattca	gtaaaagcca	atggaact	418

<210> 810

<211> 394

<212> DNA

<213> Homo sapiens

<400> 810

gagtcctgga	gctcctgctt	aagtnnaact	gagttgaata	canggatgtg	gtcaactata	60
ctgttcttac	cattgaaaaa	gaagtgtgta	ggccaggcat	ggtggctcac	acctgtaatc	120
ccagcacttt	gggatgccga	ggcagctgga	tacttctgtg	tcaagagttc	aagaccagat	180
tgggcgacat	ggtgaaaccc	cgtctctact	acaaatacga	aaattagcca	ttgtggtggc	240
acacgcctgt	aatcccagct	actcaggagg	ctgatgtggg	agaactgaac	cctggagggtg	300
gagattgcag	tgagccaaga	tggcgctact	gtgctccagc	ctgggcaaca	aagcaacact	360
atgtttttaa	taaataaata	agtgtctgaga	tctc			394

<210> 811

<211> 473

<212> DNA

<213> Homo sapiens

<400> 811

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gattccaaaa	cctcccacgg	tctggcgata	aacatcaagg	aatcaatggc	agaatacttt	120
cctgagaaat	tactccatgc	ccttgggtct	agtgaagcct	atttcatcca	tctcggaggg	180
tccatattct	gtgagaaaat	ggccccgtca	ctcaagagtg	atgaaatccg	tggagcacgg	240
ctgggctaga	aatgattacc	aaagcccgtt	aggagatgcc	aacagagact	atattaacca	300
tcattccctc	tgtcacagca	atcttgaatg	aaagaggaaa	gaagactttc	tgctggttat	360
ggnatcttcg	ggaatcatct	gacagcttat	ttattaaatg	cattttaatat	taattctnct	420
tgnaacttag	ctgaccttca	gaaacattcn	cgagtcntta	agaaccccaa	agc	473

<210> 812

<211> 301

<212> DNA

<213> Homo sapiens

<400> 812

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tttggtcac	tgntctgcng	gctgtacnnn	aagcatggca	cctgcactctg	ctcctatatn	120
agttgncagc	tntgntccct	cacacacaaa	ggnggtgtt	aagaagttac	ttcaaggact	180
gatgtcagag	gcnaagnact	atattgnntt	tctgtagnatt	tctattagta	gattttgtat	240

gttacagaat atagaactag cagaatacaa tgaatcttaa tgaaccattt attaccctgc 300
t 301

<210> 813
<211> 370
<212> DNA
<213> Homo sapiens

<400> 813
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gctgaggcca ggcattggtg ctacacacct taatcccagc actttgggat gccgaggcag 120
ctggatcact tgtgggtcaag agttcaagac cagattgggc gacatgggtga aaccccgtct 180
ctactacaaa tacgaaaatt agccattgtg gtggcacacg cctgtaatcc cagctactca 240
ggaggctgat gtgggagaac tgaaccctgg aggtggagat tgcagtgagc caagatggcg 300
ctacttgtgc tccagcctgg gcaacaaagc aacactatgt tttaaataaa taaataagt 360
ctgagatctc 370

<210> 814
<211> 212
<212> DNA
<213> Homo sapiens

<400> 814
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tcacctgatg cagagcatga gatctaagac tgtgaacctg atgcaatatt gggatgagac 120
ccatggagat cctggaatgg gaatgagaat attttctata tggaaaaaat gtgaataagt 180
ttcaaccaga cagcagtctg tggtagattg cc 212

<210> 815
<211> 196
<212> DNA
<213> Homo sapiens

<400> 815
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tgatgagggt gtaagcctcc tgccaactgc catgttgntg agcttggaac tgcagcaatg 120
gctgacatnt tgacttgaaa ccttaactga gacctnttgg attcctgacc cacagaagct 180
gcntgagata ataaat 196

<210> 816
<211> 188
<212> DNA
<213> Homo sapiens

<400> 816
agactggatc tcaactactg cctagctctt gaactcctgg cctcaagcaa tcctcctgcc 60
tcaacctccc aaagtgctgg gattacagga gtgagccact atgccncaca tggattatt 120
attattgtta ntaatactac attgtgcttc ataaataatt gctaaatata caagaatat 180
tttgtttc 188

<210> 817
<211> 394
<212> DNA
<213> Homo sapiens

<400> 817
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ggggctacgt caccaaccac atctacacct ggggtggacc gcagggccgc agcatctccc 120
cactctcggg cctgccccag cccacagggt gtgccctgag gcagcaggag ggtgaccgga 180
ggagcaccct gcacctcctg caaggagggg atgagaaaaa ggtgagtggg gtggggaaag 240
gaggccagcc tctcagacac cgtattctcc ctccgaacct agaacagcag agctgcttgg 300
aggccgcaag aagaggctgg ttctgtccag gctctgtctt ccctcaagtc tgtactgaaa 360

gggtggngtt ttttctttgc ttttcttttt gacc

394

<210> 818
<211> 392
<212> DNA
<213> Homo sapiens

<400> 818

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tccgctccgg	acctcactcc	tatatcttgc	tgagatgaaa	accacaatcc	ctgcactgcg	120
agactcatct	cataattaga	aaacaaagga	ttatccaccg	ggttctctcc	cctcgccctg	180
tggccttgct	gctccccctg	agttgctcca	aatgacaaaa	taatgacggg	ttcgcttgt	240
gagagagggg	ggcctgctca	actccacgct	ggcgctctga	ggggggcaga	agatgcctcg	300
tctcatctat	gttgcaaaaa	gccttaaaaa	ggacctgcag	ggcgctgggc	gtgggtggctc	360
acgcctgtaa	tcccagcact	ttgggaggct	gg			392

<210> 819
<211> 387
<212> DNA
<213> Homo sapiens

<400> 819

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ctttggggagg	ccgagggcggg	tggatcacct	gaggtcagga	gttcaagacc	agcttagcca	120
acatgatgaa	actccatctc	tacaaaaata	caaaaattcg	ccaggtgcgg	tggcagatgc	180
ctgtaatccc	agctactcgg	gaggctgagg	caggagaatc	gcttgaacct	gggaggcaga	240
tgggtgcagt	agctgagatc	acgccattgc	actccagcct	gggcgacaag	aatgagactc	300
cgtctcaaaa	aaaaaacaaa	aaaaaccccn	cncntntnaa	aaggtcctgg	aatcatttan	360
ntnatgggtn	taanaaactt	gaatttt				387

<210> 820
<211> 636
<212> DNA
<213> Homo sapiens

<400> 820

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ggtttgga	agtggganac	ttgcgggtga	tgaatnaaan	aatgaantgc	cattggnang	120
ctcttggtgg	atgggaaatg	gataaagaag	tggaaagaaa	tcantctccg	ctttcctttg	180
cagaactggg	ccctatgatc	tgggatgggtg	ggatgatgcg	cctgggaaac	aagtcaagca	240
agcaacttcc	cgaaggggac	aaccgaagat	aagcaccttt	tcacaaacct	tcggggaaac	300
cgttcatttn	ccccgcttga	aacttctcac	caagcattgg	gcccattctn	gnggggnngt	360
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ggccttacaa	gcanccttgg	ngggcntttc	ctccgataaa	aggggaacca	cctttcctta	480
atttnnttnc	taaatttttt	tttttngggg	aatcccnggg	aanaccccc	cttccaagcc	540
ccttgaaagt	nnnagggact	taancccttg	gggctttttt	tttttnaaaa	aaacaaaaaa	600
gggggttttt	ttttggaagg	anaaaaaccc	tttttt			636

<210> 821
<211> 395
<212> DNA
<213> Homo sapiens

<400> 821

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ccaccttggc	ctcccaaagt	gttgcgatta	caggcatgag	ccactctgcc	aggccaagaa	120
gtctttctta	acggacccat	tccaagcact	tcaaccctag	agtttgcatg	gcagtgtctc	180
gcgtttccct	tcaggccagt	aataggattc	tggatggcgc	atgggctctg	gtattaattc	240
ctgccagccc	acacctgatg	ccaggcacac	agcaagcatt	gttgaaagga	tgaaggcgcc	300
aacctccacc	tacttcacca	ccttcactct	gtccaatact	gtccaaactc	actttggaga	360
agaataaaaca	ttctttgctc	tactttccac	tgctc			395

<210> 822
<211> 143
<212> DNA
<213> Homo sapiens

<400> 822
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agcanatggc atgaaccctg ccttcctcta agagggtgtg aaatgtgatg attcaggcctt 120
ttaaattaaa tgcataaaga ttc 143

<210> 823
<211> 442
<212> DNA
<213> Homo sapiens

<400> 823
tcagacttgg ctccacaact ggaacaggcc acagcttgcg aaagagccca tgagtcaatt 60
caacagagat gagctgggga agagagagga aataagaatc ctacccatga ttcaagtcac 120
tggttaaatg ctgcctacat cttcatttat gcttcaacgg gatctcatga tttgtctga 180
ttctaaatct ttctgtcca tggtaacctt caaaatcaac agccctgtga ttatggtgaa 240
accagaattc cggcagccac tggaggggag cagaacaggc ttggatatca ttcaaagcct 300
cattcccaga gaattgtcat tatttgaact gtttagtggt tttctggaag accccacttg 360
caagaatgtc tttatttgac ctgacctgct cagtgtctaaa aatctaggga catttggtgc 420
gctcaattaa aaaccattgg tt 442

<210> 824
<211> 625
<212> DNA
<213> Homo sapiens

<400> 824
ataagtgnnt ctccaagaat gatcccnaga ctngctaant gatgcntgga cnttctactc 60
tggtggatgg cntanncg aaagcnttgg ttgaaccnmc aaanatgggg atcaaggncn 120
tttgaacaaa ganggatct gancgcacct ttctccngca cagctttggt naangaaaag 180
gctattcacc ttntggactt gaggnacaa caagacaatn ctgcttgctt ntnatgcccn 240
ccgngntccc gncttgtcaa gngcaaaagg gccgcccggg tctttttgtn aaagaccnga 300
ccttgtncgg ggttgccctt gaaatggaaa ctgccangac ccaggcaagc gccgggctat 360
ccgtgggctt gggccacaga cnagggccgt tcctttgctg aacttggtgc tcnggacagt 420
ttgtcacttg aaaccgggga aaggggactn ggcttgctat tttggggccg aaaattgccc 480
cgggccaang aacctccctg gtcaatcttc aanccttggg tccttggccg aanaaaaagn 540
aatcccatca ttgggggttg aaggcaaata gccggcnggg ntggcataa cncctttgaa 600
taccggntt ancttggcca ttttg 625

<210> 825
<211> 161
<212> DNA
<213> Homo sapiens

<400> 825
gaaatgacca gtgcttttgg taagaatgca cattatactg cagttctttg gggaatgaag 60
ccacccttga ctgaggtaat catcagttca aaggcaactc cttgttttat ctttgcacta 120
attgcttaga gaaataacca gacaataata tttatgacaa c 161

<210> 826
<211> 162
<212> DNA
<213> Homo sapiens

<400> 826
aggagaatgt gctggctctg atgttcagtg acaagggaac agagagaggt aggaaggcct 60
gaaccagcca agagacttta cctgaggtaa aaattcctct tccttcaatg cctcaaatca 120
ggatcttgaa gttggaaaat aataaaagct tgtacagatt cc 162

<210> 827
 <211> 505
 <212> DNA
 <213> Homo sapiens

<400> 827
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 ttcttgaaac tctggggagg catggaaaca tcacattgca gcagatgctg gggatgcagc 120
 aatgaacaag acaggccaga tccctactct cagataaaca caatgatcca ggtagtagg 180
 catttggttag gaatctgcat caaactgttg ggcaatggta gacagcaaca ttgacgtctg 240
 taaattttaca cttggatttt aagtttctgg ntggctgcat ctttcttctg aaagccactg 300
 ctctttttcaa aaaaacctcc taaatggcta aancctctctg ggttgcaaca agttgctctt 360
 tttccttgag ccttaagtta aggagtttgg gnagaagtaa tggcttcccc cactgctaac 420
 ttcaaggngc tacactttct cttttctaag ttctaatact ggcttacnca ttataaaaaa 480
 cccttantna aaaatcccc attat 505

<210> 828
 <211> 350
 <212> DNA
 <213> Homo sapiens

<400> 828
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 tgggtggctca cccctgcaat cctagtagcgc tgcgaggccg aggtgggagg atcgcttgag 120
 cccagagttc cagaccagct tgggcaaccg tgggtgaaacc ccgtgtctac aaaaaaaaaa 180
 tttagcctgt agtcccagct gcttggggagg ccgaggcagg tggatcgcta ggactcggga 240
 ggcggcagct gcagtgcagc aagatggcgc catctcactt cacctgggcn acanagcaag 300
 accctgtttc caaaaaaaaaa ggaaaataaa aaagtngtaa aaaaaatttt 350

<210> 829
 <211> 479
 <212> DNA
 <213> Homo sapiens

<400> 829
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 tgcaggaact ggggttccat aacaacaaca tcaaggccat cccagaaaag gccttcattg 120
 ggaacctctt gctacagacg atatctctga atgggtgccat ggacatccag gagtttccag 180
 atctcaaagg caccaccagc ctggagatcc tgacctgac ccgcgcaggc atccggctgc 240
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 tgtccaattg gtcattttcc tttctggaga atgggagcaa cataagcttc tgcagaacc 420
 taccceaaaa agaaccgggt ttgaagnaca agttttgccc ttactaactg gaattggatt 479

<210> 830
 <211> 505
 <212> DNA
 <213> Homo sapiens

<400> 830
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 gccgtaatcc taccattcac tgctgtgagt aatgaccatc tgctggggac tggagaagac 300
 ccacccaatc aanttgcact gcttgggttg cattgataaa aggaangnca caanaaggcc 360
 aataggattg agaaccactc ttccagnngn gggaacgac tgcagccacc cgcaaaaatn 420
 gnttcactnt tccantgnag gtnttttaaa aaatctntnt ntttgacata ctcttttttn 480
 aaaggngnct ccaaaccaaa taaaa 505

<210> 831
 <211> 461

<212> DNA
<213> Homo sapiens

<400> 831
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cctcatcggt tccagcccg cagcgacttc acacgggctc attaaactcc caaataacag 120
acttgctgtt tggctttggg gtttaagtgg cctggaacca aaccggaagt atagctgagg 180
tatgcctata gtctaattaa cttcacgaac tgcctcggga aagaatgaat gaactggaac 240
ttcatgcaaa agtgtatata ggccangcac ggtggctcat gcctgtaatc ctagcacttt 300
gggaggccaa ggngggcaga tcacctgggg gcaggagttc gagaccagcc tggccacacn 360
ggtgaaacct tgtctcttct aaaaatnaaa aaaantaact tgggcatggg gggccatgcc 420
tgtaatncca ctncnttggg aggnntgngc caaaaaata c 461

<210> 832
<211> 502
<212> DNA
<213> Homo sapiens

<400> 832
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acggatacga ccagatggcc ggaagtaact gaagaatcac aaaagaagtg aatatgccct 120
gccccacctt aactgatgac attccaccac aacagaagtg taaatggccg gtccttgcct 180
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ccnactgag caccttngna cccccacttn taccgncag aaaaanaacc cccttggant 300
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ctttttttta ngacngggcc cccctgcccc caggnaaaaa aaaaaagcct tnttcttnaa 420
aaaaaataaa aaaagnnnnn nnnnnnnggg gccggggggg caatnnagtt nggatttaac 480
caaagnnggg ggggggtccaa aa 502

<210> 833
<211> 427
<212> DNA
<213> Homo sapiens

<400> 833
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ccgatcacat gcaaataattt gtccctgttct gagacatcct cctgggtccc agcttcttct 120
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agtgtctgat gacaacattc ccacactgcc ctcggacaca tcacagaccc tggtagcaca 300
ggatccctct gattcaactg aagaagagat gcanaagctt gcatgccacc aagtaactaa 360
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ttgtcat 427

<210> 834
<211> 427
<212> DNA
<213> Homo sapiens

<400> 834
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gtgaatttac atttcatttg catgagtctc atgtctgcaa ctaggttgtg gtgaccttga 120
gaacgagggg atcaagagcc ttgtccagca ctgggagtgg aggtggttgg aaatcccga 180
cccccggtcc accagccttg gcctcctgca gatgctagga tcaggatgaa gtgcggccga 240
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ggccccactaa ctgctttttt atgattggca cttactggct ctgatttaac cccacttaaa 360
gagtgggtgg agcaattgtg gagggcctca aaggagagact gatgcaagtg agggcaaagt 420
atatata 427

<210> 835
<211> 426
<212> DNA

<213> Homo sapiens

<400> 835

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gggagggagt	ggtggccgca	gagaggggat	gaacatgttc	gtgggtgcc	ccacctgcct	120
ccctgcagt	gttggacttc	tgtaatgtta	tgcaagtcgc	ccaggtcagg	gtgcgtgatg	180
acgacaggag	gcccaggga	caggagaagg	ctgagccgtg	gagcataccc	atgccaatgc	240
catttccaga	gctcttgggg	tagcagttga	ggcccatctt	ctctccccc	agaacctaca	300
acactctggg	cccccaaaa	acaaccccat	ccatcttggg	aagaatgtgc	agaaaagagg	360
aaggaatggc	cacctgtcaa	ctacattgtc	acagtactgc	acatgaccat	caccaaattgc	420
ccgcga						426

<210> 836

<211> 243

<212> DNA

<213> Homo sapiens

<400> 836

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gctcaaacct	gcacacaggc	attagaggca	gaagaaggac	accatttttc	ccccgtttg	120
gtatatacca	ttcctctggg	tatgttgttt	attgatatac	tgctccgtg	tcaggcttaa	180
tacaaataaa	taaacaaaca	acaatctcta	tttttttaaa	taaaggaagc	tttttaacca	240
ttt						243

<210> 837

<211> 427

<212> DNA

<213> Homo sapiens

<400> 837

accctgtccg	tcagccagg	gagcaagcct	gggctagtta	gctgaaggat	aagagaccat	60
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tcacagagcc	acgagggagt	tagccagat	ttagaagggtg	aggatattga	cttcatctct	180
tgatgcaagg	agttgcagtt	acattgcaaa	gggatgcaga	tacaggaag	gttggagaat	240
tgcagccact	tttgcacaat	ctaccacaac	tactgcattg	tagctgctat	gcacattaaa	300
taaagtaaag	acatatgaaa	catttatatt	aanggtcctg	acaacaaata	agtgttcaac	360
aagtgtgagc	tattattact	gtttctaaaa	tggatccctt	atcatgggag	aagggtcaaat	420
taatgcg						427

<210> 838

<211> 426

<212> DNA

<213> Homo sapiens

<400> 838

tttccttaca	atcctgttgg	gtaccagtct	ccagaaagcc	actatcaatc	agctaacgat	60
ggcattaaag	agtcaactat	aggatcttcc	agaacaagga	ctacacttca	ggaagatgac	120
cttcaacata	ggagggaaaa	atgtttcata	gtcaatctag	taagaagttc	tgccttcaaa	180
gcaaaagaac	taccattttat	tagatgtttg	ccatgtgcc	ggcaatgtca	caaccctttt	240
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cagatgaaga	aactaaggct	caaaaaaac	attgtgaact	ttccaaagg	cactgagcta	360
ggaagttagt	acactcggat	tcaaaccctg	gatctggcct	acttttaaagt	ccatgggtctc	420
aatca						426

<210> 839

<211> 434

<212> DNA

<213> Homo sapiens

<400> 839

atggagtttt	gctctgttgc	ctaggctgga	gtgcggtggc	aagatctcgg	ctcactgcaa	60
cctcctcttc	ctggattgaa	gcgattctcc	tgctcagcc	tccaagtagc	tgggattaca	120

ggcgcccacc	accacgcccc	gctaattttt	tgatatTTTT	agtagagatg	ggtttcccga	180
gtttcactgt	gttggccagg	ctgggtccaa	actcctgacc	tcaagtgatc	cgcccgctc	240
ggcctcccaa	agtgtctgga	ttacaggcgt	gagccaccaa	gcacggcccc	gcagcctcct	300
tcttgaaaga	gatgtccaca	ccccatctgg	ccnttccttn	tcccttcctc	attcctaaca	360
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tacctggctc	cggg					434

<210> 840
 <211> 433
 <212> DNA
 <213> Homo sapiens

<400> 840						
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ntaactgata	nagaactcat	ttatcaccaa	ggggatgggtg	ccaagccatt	catgagggat	120
ntgcgcctgt	gatccgaaca	ccttccacta	ggctccactt	ccaacactgg	gaatcacatt	180
tcaacatgag	agttggagtt	gacaaatgtc	caaaccatgt	ctccatccaa	ccatctatac	240
agatcttggg	ttcaagaagc	cttatgcctc	ttggctaaaa	agagtttgaa	aatcctgact	300
cggcccatgg	tgctaaggnc	atcanaaaaat	ggattctgca	gaagcagatg	ctgaaatact	360
ttggtgggca	gggctcaaca	tctccagggg	cagggcaggg	cagaagcaag	gagctaaaaa	420
aactggatct	cac					433

<210> 841
 <211> 425
 <212> DNA
 <213> Homo sapiens

<400> 841						
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ttctcagagc	ctgctcagtg	tacttggaaa	tgctccttcaa	agcctgctaa	ctctcatcat	120
ttcaggggtg	atctgatatt	tagaagcaac	tgaaaatcat	ttgaagccaa	tcccagtgaa	180
ttagggtcatg	taattcagct	gtaaaaat	gccccctggc	gcacctggca	taggagtggc	240
acagagggga	tcttgcctgtg	tcacccaggc	tggagtgcag	tggtgcagtc	tcggctcacg	300
acaacctctg	ccttccaagc	tcaagtgtct	ctcctgcgtc	atcctccac	aggtgcatgc	360
caccaggggt	tcaccatgtt	gcccangctg	gtctcgaact	cctgcgctca	agtaatcctg	420
tactg						425

<210> 842
 <211> 276
 <212> DNA
 <213> Homo sapiens

<400> 842						
agaactgagt	cccttnncna	ncnctcncnc	tannccctgc	ctttttgcct	tgtggangag	60
cccatgtagc	aaaggacagc	caatagccaa	cagaaagctg	atgccctcag	tccaacagcc	120
tgcaagaaac	tgaattctgc	cagcaaccat	gtgagattgg	aagcagattc	ttccgtgcag	180
tcttgtgaga	gattatgaag	caaaggactc	aagttgtgcc	cagattcctg	accacagat	240
accgtgtgat	aataaatgca	tattgtctta	aaccac			276

<210> 843
 <211> 78
 <212> DNA
 <213> Homo sapiens

<400> 843						
gcgtctgggg	agctcctgca	taaagncaaa	ctgaggnttg	catcgnccagc	ttctatatat	60
tacggccttt	ttttttgg					78

<210> 844
 <211> 252
 <212> DNA
 <213> Homo sapiens

662377 4292460

<400> 844
gacgtctggg gagctcctgc attannnnag agctgnggat tcttatantg aaaatcnccc 60
cgggcntgng tttttaaaaca aangacggaa atctttcttt ccgmnntnaa aggacacntt 120
ganagatgca gtangaagat ggaatccatg aaccacgaag tgggtcttca gcagacacca 180
catctgncaa caccttgatc ttggacttcc taagcctcca taacagtgag aaatnaacgt 240
gttttttaaa cc 252

<210> 845
<211> 425
<212> DNA
<213> Homo sapiens

<400> 845
ccatgttgga actacatttg gaaaggnggt ngntnattaa acaangacgn aaatttttct 60
ttccnanctn aaaggacact ttgaaagggg ctnccttctg angccaaaag ntctgcccac 120
tctggaatgg agctgttacc tgnccatcntn agcacanant cncggnaaca gaaaaccaag 180
cactgcatgt tcccacttat aagtganagc tgaacgagca gaacacatgg acatatgaag 240
gggaacaaca cactctgggg cctgtgaggt gcagggagag catcaagaag aacagctaatt 300
gggtgctggg cttaataacct ggggtgatggg ttgatctgtg ccggcaaacc accatggcac 360
acatttacct atgtaacaaa ccttgacatt cctgcacatt gtaccccgga acttaaaaat 420
aaaag 425

<210> 846
<211> 261
<212> DNA
<213> Homo sapiens

<400> 846
gaagatgcca naggttgact cacttcctcc ntctctctgt gcgngcanaa aggaaaggcc 60
gggtaagatg cangccatct gcnagccaga agacangcct caacacagac tgaaccctgc 120
tggattttga nctggaantt ccgccttcca gaactgtgag agaaaaattt ttgtgttggt 180
taagncaccc actcntatat tnngttatgg cagcctgagc cgattaatat gtacaacatt 240
ctatataaaa tatgaaacat t 261

<210> 847
<211> 203
<212> DNA
<213> Homo sapiens

<400> 847
gctgcatact gattcttaaa acatgaagaa catatggcat gaggatgaag agtggacaag 60
aggtaaaagt agctgaaata tataaaatgc taaaagtgtg acaaaactga tttcaaccaa 120
gcacttgatc tcaaccaaac aaaaatgtat gcacaaaaga aatatgtcaa aataatacaa 180
tttatgctcg aaaaaaaaaa agg 203

<210> 848
<211> 124
<212> DNA
<213> Homo sapiens

<400> 848
ctaacggnac nggngcccag atgtgaggac aagagaaagg tggggtaagg gatagagacg 60
gggaagacaa tgagcaaacc tagggttttt tctggacatt caataaatgc ctatttgaga 120
tgct 124

<210> 849
<211> 315
<212> DNA
<213> Homo sapiens

<400> 849
tggggagctc ctgngttnag ctcnngctgn ggggtctatgt ggangtaatt annaatcttc 60

gagatcatcc	tggattat	gggtgggtcc	taaatccaat	gacaagcatc	cttagaagag	120
ccatccccggg	gagagacaca	tggaggagaa	ggccacctgc	aggcagaggc	agagactgag	180
gtatgcagtc	acaagccaag	gagcgtctgg	agccagcaag	aggtggagat	gcaagcaagg	240
attcttctga	gagccttcag	aggaagcaca	gccccgccaa	caccttgatt	ttggatttct	300
agcctccaga	actgc					315

<210> 850

<211> 272

<212> DNA

<213> Homo sapiens

<400> 850

atattctttc	agatcctgca	tactgaaact	actgatgccca	gctgggtctgn	nggattctat	60
gggangntga	ctcaccaatg	aatgaagttt	ccacatcctg	atgatctcat	ccccctgccca	120
caatgaatcn	acagcccaaa	ttttccagcc	ccttgccctc	caaaatctcc	ttaaaaaccc	180
cagtccanaa	ctccccggag	gatattggatt	tgangatncc	tctcgmctct	ctacttggct	240
gccttgcaat	cattaaactc	tttctctgct	gc			272

<210> 851

<211> 326

<212> DNA

<213> Homo sapiens

<400> 851

tgagtccttg	gagacagga	cctgtcctg	ctgtacatcc	agagcctgac	agaggccctg	60
atctgagtga	gctgcccga	ttgctgaatg	gacagaagaa	caaccctctg	aatggtggaa	120
acagctgcct	ccgaggcacc	agccacacgg	tctggctttg	gtcaatcctg	cacgattccg	180
caaggcacgg	tgactcacgc	ctgtaatccc	aacactctgg	gaggccaagg	aggggtggact	240
gcttcagctc	aggagtgtga	gaccagcctg	gcaatagggt	gaaaccccaa	ctctacaaaa	300
aataccaaat	acaaaaatat	atatat				326

<210> 852

<211> 340

<212> DNA

<213> Homo sapiens

<400> 852

agacgggggt	tcaccatatt	ggttaagctg	gtctgaagct	cctgacctca	aatgatccgc	60
ctcggcctcc	caaagtgctg	gaattacagg	cttgagccac	catgcccagc	caaccctata	120
gctttgcttg	ttcatcctgg	gaaggaaactg	tgcaagttgg	cgcttcgggc	ttggtataaa	180
aacggctcct	gaattcctgc	ccagttgtaa	tttccttggg	gattttgaga	ggggctcttc	240
aacgttgcca	ggctatcacg	gcccttttgt	ttgcaagaga	gcagtgagta	aattatatct	300
tgggcttagc	aaagcaaaaa	ataaacacga	tgacagtagg			340

<210> 853

<211> 264

<212> DNA

<213> Homo sapiens

<400> 853

gtcccagcta	cttgggagtt	tgaggcaaga	ggattgctta	agcccagaag	ttggagcttc	60
agtgaactat	gaacagccac	tgcattccag	cctagggtgac	agangctata	actgaagaag	120
tgggagaagg	aggaaaaaga	aggggaagag	aaaaacagca	agaacaaaaat	gaacaagaac	180
aggaagaaag	aaagaaaaaa	ttaatttaat	atttttccct	tggaaaataa	aagctaaatt	240
ccaagaatat	atcatttggg	tc				264

<210> 854

<211> 208

<212> DNA

<213> Homo sapiens

<400> 854

acaaagatat	ttctggcaag	acgtggagag	aaagagtccc	ttcaatgaaa	aatgcaaga	60
ctgttctgac	tgctttttca	ggtaaacttc	ctgttggacc	tagttggctt	gttaagtga	120
ggacaaaacc	agaagggtgt	ctacatataa	ggctcactct	gaagtttcag	gctgctggac	180
tggttgcttc	attacatgta	ctttgttc				208

<210> 855
 <211> 221
 <212> DNA
 <213> Homo sapiens

<400> 855						
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acagtagatg	attggctggg	aaagcagaag	cggctgcctg	gaaattccct	tctcccatga	120
tttgcaaaat	tttgcttttg	tatatatttc	taagaaataa	tctatagctt	ttattatgta	180
ttccagggaa	ttgataaacc	cctcaacaag	ttaagaacca	t		221

<210> 856
 <211> 142
 <212> DNA
 <213> Homo sapiens

<400> 856						
ctctgccatg	tgagaagaca	cgtagaatgt	ggctgtctgt	agccagaaaag	agagacttat	60
cgagaactaa	attggctggc	accttattct	tggacttccc	agccttcaga	tctgtgagaa	120
ataaacatct	gttgttgaag	tc				142

<210> 857
 <211> 440
 <212> DNA
 <213> Homo sapiens

<400> 857						
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caaattggatt	tgagactgag	cgactcccat	ctctatgggt	ggtatgtgac	ccatctatcc	180
tctggaggac	tcagcaagga	ctaccagtca	ccagacaact	ttacgcgcac	gtggtcgcaa	240
ggtgaacttg	ctattgggta	atggcagtaa	agcccgccta	tcagcgtgg	tctgctcctt	300
taaaagaacg	ccatcgacgc	tcccctgtct	ttcagcgcct	gcaggttccg	ggaggncagc	360
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caataaagtg	gtttgaacc					440

<210> 858
 <211> 460
 <212> DNA
 <213> Homo sapiens

<400> 858						
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aacctcggga	aacttacaat	catggcagaa	gatgaaggaa	aaccaagcac	ctcttaaccat	120
ggcagaggag	gaaagaaaga	aagcgaagg	ggagctgcca	cacactttta	aaaccatcat	180
atctcatgan	anctcnttcn	ttatcacaag	aagagcaggg	gggaaatctg	cctccatgat	240
ccaaccacnt	cccaccaagc	ccttttccca	acntgggggg	atnccaattc	gacntgaaat	300
tngggggggg	ncccanngcc	aaccntttc	ncantccatn	gngggngata	gntgntncag	360
tanctgtagt	aaacttgcaa	natattaact	gtcattgnct	tgncnaaagg	gggctcattc	420
caaannatta	ttttgcncca	tnggggggacc	cacacagcca			460

<210> 859
 <211> 375
 <212> DNA
 <213> Homo sapiens

<400> 859

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cagctgcctc	gacctcccaa	agtgtctggga	ctacagacat	gcaccaccac	acctggcctt	120
ttatcctctt	tttagcaaat	gcatttaggg	tttgtattta	cctgtaagaa	cagggtttacc	180
tgaatttcgc	atagtttgat	agggcaatcc	ttgcattgtt	ctcagttctt	aaaaatttcaa	240
aatttcatt	ttgaaangtt	ccctccttat	ttttggattt	taagcatctt	taaaaatctt	300
tacacaggca	aaaaaaaaaa	gggccggnnn	ggccaattna	nnttggactt	aaccaggggt	360
gaattttttt	taaaa					375

<210> 860
 <211> 474
 <212> DNA
 <213> Homo sapiens

<400> 860						
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gggctgttcc	cctcttttggg	gaacctgtag	ggagtgtctga	ggcggcatgg	ttctgagtca	120
caggggacct	gaggacacag	ggatggggca	tgttggtcca	gaactccctc	cagcagctgc	180
gtgctcaagc	ccttgtgtgc	tggtgagagg	ttggctgagg	aaaggcagcg	ttcaaggtga	240
aggtgacaga	aggcccaggt	caggctggat	gaagacaggg	cccaggacgg	gcttcacacg	300
tgaagctcgt	ggccccctt	cctcctgctt	ccaccatccc	gtcttggggc	gttcttcttc	360
caacgtcttg	acttctctggg	gaatttntng	ggcatntttt	tccnttncaa	gtacccccct	420
tcctgccttc	aatgtccaca	agtgggtgca	gtgaatggac	acttgtccaa	acaa	474

<210> 861
 <211> 341
 <212> DNA
 <213> Homo sapiens

<400> 861						
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cgcccgcctc	cagggttcaa	gtgattctcc	tgccctcagcc	tcccaaatag	ctgggactac	120
aggcacgcac	taccttgtcc	agctaatttt	tgtattttta	gtagagacgg	ggtttcacca	180
tgttggctcag	gctgggtcttg	aattcccgcac	ctcgtgatcc	agatgcctcg	gctccccaag	240
gtgctgggat	tacaggcggtg	agccactgtg	cccggactga	aactgacttt	gaacttctgt	300
cttcagaatt	gtatgcgaat	aaatgtgtgt	tcttttaagc	c		341

<210> 862
 <211> 197
 <212> DNA
 <213> Homo sapiens

<400> 862						
tacnaactgn	gggtgggaagc	caatgcccga	gangtttgtg	ggcagccac	ctttgcacc	60
gtgangcacc	agtggggaat	gacagtcaag	aagaaaccnc	ggganaatnc	nacccttgg	120
nccancagca	ccacccctt	gctttccgga	actcagaagt	ggtggagaaa	aaaaataaac	180
ctcctttttt	gtttatt					197

<210> 863
 <211> 335
 <212> DNA
 <213> Homo sapiens

<400> 863						
cattttgggg	gggccaccgc	caaccaaagt	gcgtnatgca	cgtcgaataa	agtgtgtggg	60
aagttccacc	gcttgtggaa	ccgccatgca	agttcgtgta	ctggatccct	tgggggaacc	120
aaacgaagtt	cacaagcttg	aacaagttgt	ttcggcgaat	ggctttgaac	tgggggcttgg	180
gtgctccatc	attgtcctgc	tgggccaaaca	accgtcgctt	tgaccttgtt	cgactttntg	240
ttaccacctt	gcttnaaaaat	gccaaaagcc	aggaaaccggg	aanggatgga	aatcatttaa	300
aaaatgggnc	ccctgaaaaa	aaaaggccga	ccggg			335

<210> 864
 <211> 451

<212> DNA
<213> Homo sapiens

<400> 864
gcaaatgcgt aatggatgtc aaaatccaga aataaggcag caagtattgc acagaatgtc 60
tgcattgact ttgcaaagac cagaccctct gggttctccc tggaaacaaag atgcacaaaa 120
ggctggagca gccaaatggg ccaacccctg gagtgccctt tttcttctgt gttaaaaagt 180
tgcatttcat gcagaccag cctattcccc caacccctca atcttctccc tccctcctac 240
ccacaagcac acatacaaca gaagggacgc ctctacaccc tcaccagctg cctacactca 300
ttcacctgcc gctggctggg ttccggcactt gttttccaaa ccagtcaaag aactcacagc 360
cccaggactt aaaaagggtt ttattgggtc catanaggct taaatttggg ggctcctaaa 420
gggatcacca tgggataaat aaaaatatac a 451

<210> 865
<211> 479
<212> DNA
<213> Homo sapiens

<400> 865
actgaggggc attcagataa gccatcatat cccctgtgac ctgcacgtac acatccagat 60
ggccgggtcc tgccttaact gatgacattt caccacaaaa gaagtgaana tggcctgttc 120
ctgccttaac tgatgacatg gtcttgtgaa attccttctc ctggctcatc ctggctcaaa 180
agctccccct ctgagcaccg tgtgaccccc actctgcccg ccagagaaca accccccttt 240
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tgctgactct cttttcggac tcagcccacc tgcatncagg tgaaataaac agctttattt 360
gctnctaaan cttgtnttgn nnacanttnn natnccnctn tgntnttttt gnnacnaata 420
ttgatngaatt tnanannan nggggggggg cggggggggn ntntnttttt tttttttat 479

<210> 866
<211> 160
<212> DNA
<213> Homo sapiens

<400> 866
ggcatgtggc attctagacg taacaagcat tatgatttgt ttgaaagaac tgntaaacag 60
tgtccagaat taagcacatt tcctccattt tctcaaaaaga gtttcctgga gaagtcagaa 120
gaaataatac aatttcctat taaatgcaac atataaccac 160

<210> 867
<211> 447
<212> DNA
<213> Homo sapiens

<400> 867
gtgcacacaa tgaaggaagg ccatggccca cananagaan atgntnaggc caggcntggg 60
ggctcacacc tgtaatccca gcactttggg atgccgaggc agctggatca cttgtgggtc 120
agagttcaag accanattgg gcgacatgat gaaaccccgct ctctactaca aatacgaaaa 180
ttaagccatt gtgggtggc acgcctgtna tcccagctac tcaangaggc tgatgtggga 240
gaactgaacc ctggagggtg agattgcagt gagccaagat ggcgctactg tgctccagcc 300
tgggcaacaa agcaacacta tgttttaaat aaataaataa agtgcttgga atttcaaaaa 360
atacaatgcc tannttaaaa taccatatat tatatatcca tatggctata atgattcccc 420
acctgtttat ctgtcctaac gcaaatg 447

<210> 868
<211> 335
<212> DNA
<213> Homo sapiens

<400> 868
ttataagttc cttgnnngga caaaagtggg ttaacacttc tgtctatcta aagatgtcta 60
cttcaaatnc tgggcacaag agtgattgac agcaatttga ttgattagag aggtttcttt 120
aagaagagct tttactctga ataaaatatt cctgtgagga agatgctgac tggccatcca 180

ggtctgcaga	agacaagacc	agaggaaatg	gattttgaac	atgttcccag	agatctttta	240
aaaaattacc	tgcaaaggag	tttaancccc	ggantancng	aacaaagaaa	gctgagggtc	300
tctcctgaag	tgaatgtttt	aaaaatagac	agtct			335

<210> 869
 <211> 320
 <212> DNA
 <213> Homo sapiens

<400> 869						
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aactatccca	gagcgacac	atggggcaga	gtgaaaagat	aacacagAAC	tgggaagcag	120
gcaggaaaca	gcagaagaga	agaaagtTga	gatgaagaaa	aaaatatgaa	cgaaggcaat	180
gaagtaagg	gaagatggag	acaactttta	gggctttttac	tataggttca	ctgtttctaa	240
tataaccatc	agaatcttct	gtcacaaaag	gttacatgtt	gatggaaaga	atacaggaaa	300
ataaatgaga	tctaattttac					320

<210> 870
 <211> 795
 <212> DNA
 <213> Homo sapiens

<400> 870						
acatagggag	tgtatntccc	cntccccaa	nggaanggca	ttggaccttg	gacttgganc	60
catgcatggc	gccctaccct	caatgggaac	gagggccgtc	gtcgacnaga	acttcagtgc	120
actctaagaa	cgtcggccca	aggacctatt	cgcacatggg	taggcagcta	ggacacatat	180
ggaattaaat	ccaacgacgg	acaccttagt	gagtacacgt	ctaggtgtcc	aaggggcaaaa	240
aacgatggcc	acgtacatgc	acgaacacga	aaacatgtta	tagtaggtaa	tcgtatatgt	300
acaaccacaa	acactcacta	gtatatccgt	agacgagncg	aaantggnaa	aagttcaacg	360
agtgcgcata	gcaatggcgc	agcaccaaga	gcatatatTT	taagagtgnC	ctttgtctca	420
ccataattaa	ngggttgtnc	aangttggnt	ttttccntaa	antaatnaaa	anaccaattn	480
cngggaanat	tncttttccn	tggncncacc	aataaaaaang	gggcatnacc	ccttggttnt	540
ggcatttggg	tagaaangga	aaatgacccc	gcggaaacat	attttaataa	ttggaaagga	600
ancctctttg	tttgtgnncc	ctnaaaaaaa	cattttgnga	tttttttttt	ttntggggcc	660
cggcgcggtg	ggnggggnca	aaattngnna	ttttcccnng	gggttttttt	taacncccc	720
ggggtttttc	gaaacntttt	tggggtcccc	aaaaaaaang	gggggggggg	ccccccccc	780
cccccccttt	tttgg					795

<210> 871
 <211> 264
 <212> DNA
 <213> Homo sapiens

<400> 871						
gctcatgaat	ctctgtgatg	ctcangagct	caancgttct	gttgntggca	ncctttcctc	60
ncctgggtgc	acgttaaagc	ggatttggan	tttatctggc	ttgctgattg	cntaccatct	120
ccccaggag	ttcaaattcc	cacagtntac	caacacaact	gatgctggaa	gctaaacttg	180
ctacaganaa	ctgagagaac	caaacaattt	tcctttacct	gttctcacga	tacttgaaan	240
taaatgtcta	catggaagga	aagc				264

<210> 872
 <211> 566
 <212> DNA
 <213> Homo sapiens

<400> 872						
caactcagag	gagttaatgc	ccatgaggaa	agcagctttg	tcagcatctg	gtcatcagaa	60
atagaagaaa	aggaaggaga	gaggaaaaca	ctgttaagat	tcattccatt	atagccaaac	120
taactncccc	aaagnncaaa	agaannnggg	gttacctnna	cggaaacnaa	naaantggng	180
ntttcaanaa	aatgccngaa	tcctaaaagt	ttaaaggaaa	ttatttcttc	gaaatacaag	240
tcaaagccac	attgaaatct	cactccttca	gtttgntggc	nttaaggaaa	aagaaaatat	300
natgcccctc	nccgcccctt	tnatggntnt	tattcaaccg	gcgcacatta	ccaggngttg	360

acaaggatgg	ggaaaaatgn	gaaccctcat	gcnttggggg	gtgggaatgc	aaaatgggng	420
tgtntttgcc	ggganaacag	tttgacagtt	actctgaagt	taatcataga	gtactatgga	480
accaccatt	tcacttttag	gtcccnccca	anataatgaa	aacatttgtt	cncccaaaaa	540
ttggnncnaa	tgtttctagc	accttt				566

<210> 873
 <211> 90
 <212> DNA
 <213> Homo sapiens

<400> 873						
agaacaaatg	atgaaatggag	gaggccactg	gtttacacgg	aaagggtaaa	ggacaacgac	60
tatccagatt	tttcttccaa	ctttactttt				90

<210> 874
 <211> 550
 <212> DNA
 <213> Homo sapiens

<400> 874						
aggatcctct	attaaatgtg	tgggtccatga	accagcagct	tcagcatgac	ctgagagctc	60
ataacctcgt	ctctacaaaa	aatacaaaaa	aagtttagcca	ggcatgggtg	tacacgccta	120
tgggtctcagc	aacttgggag	gctgagatgt	gcctgctttc	ctttcacctt	ccaccatgat	180
tgtaagtttc	ctgaggcctc	cccagccatg	cttcctgtat	agcctgtggt	acggccaagt	240
ctcgccacat	ggcatcattt	cctcctcacc	tgcagaatcg	ctgtgactta	tggtcctct	300
gattgcacct	gctttnacca	acanccctng	aaaaaaantc	ttttttgtgg	ggataaaaag	360
tnagananan	ctnggttnca	tnacttggtt	aaaatnggac	cctctcaaat	gaatgtaagc	420
acataatggg	gggactacac	tatgagatta	aaaggaatcc	agctgttacc	aaaaatgggt	480
gcctgccagg	tttatccacc	aaattctttc	cacttcatgt	cattaaaaat	aaaatttgag	540
ttttaaagt						550

<210> 875
 <211> 400
 <212> DNA
 <213> Homo sapiens

<400> 875						
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ggaatgggtg	gcttggcatt	ggcccaaacc	aatggaaggg	aaaaattccc	gggaccacca	120
ccaaagagga	aggaacattc	caaggggggg	ccaccaaagg	ttgccgccaa	agaatggaaa	180
ccaaaggcca	ccattggaaa	gaaaaggggc	caggcaaagg	aagggggaaa	agccccattc	240
ttgncaaagc	cccaagaaa	aagggaaggaa	aagggttca	agaaaagaaa	aggtttaaag	300
gttcttggcc	cagccantct	ttgaaccctt	tnggancttt	cccaagnctt	tttcaagaac	360
cttggtgnag	aaaaaataaa	anttttcttg	gcttgggtttt			400

<210> 876
 <211> 578
 <212> DNA
 <213> Homo sapiens

<400> 876						
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tactgaggac	ccctggacca	accactggc	cctttgactg	gcctagagaa	ttcacctcca	120
gaggacacta	caactgcagg	gccccttctt	cgcccctatc	cagcaagaag	taactagagc	180
ggtcatcacc	caattcccaa	cagcagctgg	ggtgtcctgt	ttagacgggg	gtgggggggag	240
attgngaggt	gaagccagct	ggacttcctg	ggttgactgc	agacttggag	aacttttctg	300
tcttaccaaa	ggattgnnaa	atggcccatn	cncctttttg	taaaaaccca	ccaatcanng	360
ctttgtanct	agcaagaana	ttntaaaatg	ccccaaccag	cnctntgtaa	aatgcnccaa	420
tcagcgctnt	ttaaaatgcn	ccaatcancg	ttttgtaaaa	tgcnccaatt	ancanggatc	480
ctaaaagtgg	ccattcncag	ggagaactga	aaaaaggccc	tcggttagga	aagaaacana	540
cggggggang	gggccaataa	ggggataaaa	gctggcct			578

<210> 877
 <211> 408
 <212> DNA
 <213> Homo sapiens

<400> 877
 gaggaagagg canagnacga cggctcaatn aaaccncca ctnntngtnn ngganagnn 60
 nacttntctt tggctctnann gcncttcang cttgaaccac catgaangcn gaaattccat 120
 ccanttaccc tggaagtggg aaaccgacaa cctgcatggc attttttgaa gctagacatg 180
 taaacatcat ttaaaagtgc tgttttcttg gctcacgcct gtgaccccag cactttggga 240
 ggtcaaggga ggcagatcat gaggtcagga gattgagacc atcctggcta gcacggngaa 300
 accctgtctc tgctgaaaat tcaaaaaatt aaccggtgt ggtngtgggc ccctgtaaaa 360
 aaacttctcg ggaaggctga ggcaggaaaa tggcgtggaa ccttggga 408

<210> 878
 <211> 186
 <212> DNA
 <213> Homo sapiens

<400> 878
 catcatgcaa actgggaaga ggaccctcac caggaaccac atctgccagc accttgatct 60
 tgaacttctc agcctccaga acggtgtcaa tggacgtgga cgtgtccccg gattaagcat 120
 gaccttggcc ctctgggtg gacgtggagg cttcagaaaag attcattaaa ctactttcca 180
 aagctt 186

<210> 879
 <211> 274
 <212> DNA
 <213> Homo sapiens

<400> 879
 agaaacaagc atcaaccctc tcaccacggc acatctgcct ctgacttcta agcgctagac 60
 caacctatgg atcctgtcat ccacctccac atcctgcatg ggaatccaag aacccttcat 120
 catctacctc agtctccagt gggccagcaa aaccaccaag ctctttctat tgccacagct 180
 ttgtcatgtg cttttctact cattctgtct ttagataatc acgtgatgta ataacatcac 240
 tgctatgtct actaaaaaga aatctgagaa actg 274

<210> 880
 <211> 319
 <212> DNA
 <213> Homo sapiens

<400> 880
 gagcaccatg caaagtgcgg agatgcagag aggaaagact actcggtcct tgttccttgc 60
 tgtcccagag gtcacagtgc tgtggggagg gggacaagga cataccctgt caggctgcgt 120
 atataaatac acaggtgcta agcaaaatgg gaacggagaa gggaaagggt ccctccacct 180
 tgagagaccc acagaagggt gttctagaga tggatgagtc agactgcaag agagcaaaga 240
 tatcttcctg aatacattca atatcaaagc atcatgtgcc ctgtgtgtgc aaaataataa 300
 taatcataat aataaagtt 319

<210> 881
 <211> 433
 <212> DNA
 <213> Homo sapiens

<400> 881
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 atctgtaaga tttcttccca agcacaacat cagatccaat gactgtcaac tgagtgtgtg 120
 ccaatgactt atttgaagg tggacaacac cacataatca ccagattccc cacattcaga 180
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 ctgtgagaag agggagtgga tccggacctc ttggctgggg ccacactggg tttatctgta 300
 tctgtctctg aatcttcagc ctgctacaat ctgttcacac ctgggtatct acagtcttga 360

catcctacca cttgctgctc aaggetctta acttgagctg gaaagtaa	420
ttcattttcc cct	433

<210> 882
 <211> 454
 <212> DNA
 <213> Homo sapiens

<400> 882	
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caactttctac tgaggacccc tggaccaacc cactggccct ttgactggcc tagagaattc	120
acctccagag gacactacaa ctgcagggcc ccttcttcgc ccctatncag caagaagtaa	180
ctatgagcgg tcatcaccca attcccaaca gcagctgggg tgtcctgttt agacgggggt	240
agggggagat tgagaggtga agccagctgg acttctctggg ttgactgcag acttggagaa	300
cttttctgtc ttaccagagg attgttnaat gcaccaatca nactctgtt taaanacacc	360
antcagtgtc tcttgtagnt ngcaagaaga tttntaaaat gacccacca gcacttttgt	420
aaaatgcacc aatcaggcgc tttataaaaa tgcc	454

<210> 883
 <211> 175
 <212> DNA
 <213> Homo sapiens

<400> 883	
atgagaagca gggattccca gcaaaggaga accatgagtc acagggagaa gtctggccgg	60
aagctgtgta cacacattct cacaggacta tggcaacttc cggaagctgc ctgtatgcct	120
tgtcttgtgg ccccttctc cctcttcagt gccagcaaca ttgcatttac ctgac	175

<210> 884
 <211> 377
 <212> DNA
 <213> Homo sapiens

<400> 884	
gaaaagcctt gaaaattttt ggagttacata tagtaagaat gcacttcact gcagcaaaaa	60
tggagtttca ctcttggtgc ccaggctaga gtacaatgga gtgatctcag atcaccacaa	120
cctctgcctc ccaggttcaa gctattctcc tacctcagcc tcccaagtag ctgggattac	180
aggcatgtgc caccacaccc agctaatttt ctattttttg tagagacggg gtttctccat	240
gttggtcagg ctggtcttga actccagacc tcagggtgat caccgcctc ggccctccaa	300
agtgtcggga ttacaggtgt aagccaccgc acctggctta aaagtaaatt ttaaaaaata	360
acagtttata aattaag	377

<210> 885
 <211> 260
 <212> DNA
 <213> Homo sapiens

<400> 885	
tagatgcaat ccatggaaca ctccacgtgg acttggtgtt ttctccgcat tcatggacaa	60
tttaattcca gctataatcc agtttccac caaacactga gttgcctccc aacgctgtcg	120
accacttgct ggaacaattg tcccccttt gcattgggaaa gcaagatata atgacatttt	180
gttctgatgt gcaaaacatg cctgggtttt agaccctggc catttccatt gtcagtcttt	240
aattaaatca gtggttttct	260

<210> 886
 <211> 435
 <212> DNA
 <213> Homo sapiens

<400> 886	
gcaatccagg tgacaatagc gaagtttcag gaactccatc atatccagca tgtcaggatc	60
tcacatgaac gaatggcata ttccactcca tgtgagaaag gctgtgatgc catcatggaa	120

662207-12983450

aagatctagc	tttgaaagcc	agaaagaagg	aacatcagcc	ttaacacttg	ggagtaatgt	180
gacctggggt	tgccgagtg	cttactgaac	aatagctctg	actgggtgaa	ttcatcaacc	240
caagtttggtg	tatttagata	tcatctatgt	atctccgaat	ctgctcctca	acacacagct	300
agctgtcata	atacataatc	aactagtatt	tctcaacaag	caaattagta	gactgtcaaa	360
gggattgctt	aaccatatgc	ttctctcatt	actacataat	cccagaaaat	aaaagtaaca	420
ttgttttaga	atgac					435

<210> 887
 <211> 437
 <212> DNA
 <213> Homo sapiens

<400> 887						
gggcattcag	ataagccatc	atatcccttg	tgacctgcac	gtacacatcc	agatggccgg	60
ttctgcctt	aactgatgac	atttcaccac	aaaagaagtg	aaaatggcct	gttcctgcct	120
taactgatga	catgggtcttg	tgaaattcct	tctcctgggt	catcctgggt	caaaagctcc	180
cctactgagc	accctgtgac	ccccactctg	cccgccagag	aacaaccccc	ctttgactgt	240
aattttcctt	tacctaccgg	aatcctataa	aacggcccca	cccctatctc	cctttgctga	300
ctctcttttc	ggactcagcc	cacctgcac	caggtgaaat	aaacagcttt	attgctcana	360
aaaaaaaaggc	cagnagaggcc	aattcagctt	ggacttaacc	aggctgaact	tgctcaaaag	420
gnnggggcccc	ccccccc					437

<210> 888
 <211> 328
 <212> DNA
 <213> Homo sapiens

<400> 888						
atggagtctc	gctctgtcgc	ccaggctgga	atgcagtggt	gcatctctccg	gttcatgcca	60
ttctcctgcc	tcagcctccc	gagtacctgg	gattacaggc	gccaccacc	atgcccggt	120
aattttttgt	atttttttag	tagagacggg	gtttcacogt	gttagccagg	atggctctca	180
tctcctgacc	ttgtgatccg	ccgcctggg	cctcccaaag	tgctgggatt	acagacgtga	240
gccaccgcgc	ccggcccca	cattcttttt	tgcttgggat	aaacctctt	caggctgtta	300
atcaatatag	ataaaagtat	actgttct				328

<210> 889
 <211> 450
 <212> DNA
 <213> Homo sapiens

<400> 889						
ctcaggccag	taattttgac	agaggtttgt	cctgtattgt	ggccagggag	cagcccagaa	60
aaacttgctg	cactaggccc	agtggggtgt	gctccatcag	acagaatgtg	tgtgtcacga	120
gccttctaag	aatcaggagg	agggaagtca	ttcataaagg	aggcagatgc	tgaaatgcaa	180
ctttggcttc	ctcttccaag	tccttcaact	ataggaatgt	ggccctttct	tattcacaga	240
ggggctggat	ttctctttac	aacctgagta	ccagaagctc	cctaccttct	caagtcagaa	300
cagaacagga	aagtggctaa	ttcgaccttt	gcattctcca	cactggggga	gatcacaggc	360
caggctgcac	acctctcaaa	acccaacctc	angacagacg	tctacagggg	atgctaagac	420
tttcgaaagc	aggagaaaaga	tatgtccaga				450

<210> 890
 <211> 245
 <212> DNA
 <213> Homo sapiens

<400> 890						
atcacacaaa	gaagaagtca	tgtgaacaca	cagcaagaat	gtggcagcct	acaagtcaag	60
agaagaggcc	ccagagtcta	ccttgcaggc	accatgatct	tggatcttcc	agtcttcaga	120
actgtgagat	gtacatttct	gttgtttaag	cattcagctc	ttgggtatgt	tttatggcag	180
cctcggcaga	ataagacact	nattcatcta	ngtataccat	atacagttga	cccttaaaca	240
gcatg						245

<210> 891
<211> 440
<212> DNA
<213> Homo sapiens

<400> 891
agctttttgtt tcagctcacc ttatgaagct gtttcccaag aggatgaccc ggggtgctgc 60
ctgggctaagt aacaagcaaa catttcggag cctaagtttg ggaaagagcc tgaaggcccc 120
tacaccctga agcaacattc caagccttgc tgctcacaat gcgggtcccgg gaccagcggc 180
agcagcagca gcccaggacg cttgttagaa atgcggcacc tccggcccca cttcagacgt 240
tctgaaccca aatctgcatt ttatcacgat cccaggtgat tcatgtgccc gtttagagtga 300
gcgaagccct ggattagaga acagaaatta gacgtgaccc tttctttgac aggaatttat 360
caccaggctc tatctcaaga actgngagaa ttcggntcaa natgtttgtg ataacttttg 420
agcagtactg actagcgtgg 440

<210> 892
<211> 334
<212> DNA
<213> Homo sapiens

<400> 892
caaaaannnca actgcagatg acagccctat cgctcctncc actaccancc cattgnatgt 60
acctggnttc cccatccaag ccaaagagcc ctcttctgtg cctggactaa gaaacagaat 120
gaaaaaacca cacagaaaaat cataagctgg ggaccaaagg cagtcaaccg tttctgcata 180
tgcctcaaaa tgtgactcaa tctagagggt tccagtttca cctgagctgt taaatttaca 240
ggaagatctt caatgatctt cggaaaaagac agaagagcaa gaaaatctga aaaggatatt 300
aataaaaaatt aagctcaaa gggaaaaaat agtt 334

<210> 893
<211> 352
<212> DNA
<213> Homo sapiens

<400> 893
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ccgccacctc ctgagttcaa cgcattcttc tgcctcagcc tcccagcag ctgggactac 120
aggcgcgcca ccacaccagg ctaatttttg tagttttcgt agagaggggt gtcaccatat 180
tgccagggct ggtctcgaac tcctgatgtc gtgatctgcc cgctcggcc tcccaaagtg 240
ctgggattac aggtgcagcc accgtgtctg gctgctccat tgtaatctta cgggaccacc 300
atgtatatgc aatccttggg tgactgaaat ggnctaaang gggggattga at 352

<210> 894
<211> 525
<212> DNA
<213> Homo sapiens

<400> 894
gcccagctcca caagggcaag gcttgcaaga gaggaaggag gaatcgcgga gcagcaaacc 60
aaagccaggc ctgtgtcttg agagggcttc tcaccaaggg aagcttccag ggccttctcc 120
aaagcaccat attcaagcac tggatgctgc ttggacatat caattgaggt cccagagaaa 180
tcagtatggg gagaagaagg acttggaatc acacaaacat ggggtccgaac cctgcttgcc 240
cttcccagct gggtaaactc cagggctctca ctctgttgcc caggctggag tacagtgggt 300
caatcatggg tcaactgcag ttcaactcct gggatcaagc aatcttctctg cctcaacctc 360
cccaatagct gggactcctg aatagacaag ggtcccacta tgttgnccaa gctgntctcg 420
aaattttggc tcaanaaatc ctcttgcctt ggnctcccaa agngctgggg taacaggcgt 480
gagcncctt gnccaaccta ttatagtctt attcttacat aaata 525

<210> 895
<211> 366
<212> DNA
<213> Homo sapiens

<400> 895
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 gacaagggga cagtcagaac ctgcatactt tgaatgcaat accagggcac tagtgccaag 180
 agttacaaaa gaagaagagc cttttaactt tggcgggagt gcagaaggga ggacccaaat 240
 tgtaatttga acacattatt gagtaagatc atataatgga aaaggaggaa actggtttaa 300
 agagatgaaa taaaggtaga ggttaattag aactaccaac ataatatat gcccttttaa 360
 aagaag 366

<210> 896
 <211> 377
 <212> DNA
 <213> Homo sapiens

<400> 896
 gcagctcact atgaggctat cacaaatcaa tgggaagcaca tttgggtgaag agtacaggcc 60
 catcagagga taccactgaa tccatgctcc acagcagttc ccagcaagct gcactcttcg 120
 aaggcgggat gctgaaacct ctgccccac cccctacatt agctttatat ccaaagtga 180
 ctggaggct ggtgagctca aggtgatcaa tgacagctcc aatcaaagcc acccagtaga 240
 cagtgcactc accactcctt gatataaaaag gtgttttatt tctcatcctt ttatttttgt 300
 cactgaaaga atgcttccca tgtgtggatt aattaaagtg taaacattaa atattgattg 360
 atgcattatc agcatgg 377

<210> 897
 <211> 392
 <212> DNA
 <213> Homo sapiens

<400> 897
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 gggtgagggg ctggaaaaga ggaggagtca gcaagttgaa agtcacaaca gaccagccca 120
 ctccctcaga taaaagaaaag gcacatcaca gttgtcacat cagcaggcta gaaaagccat 180
 cccattcctg cggcaggcat tctgtcaaag aaaaagaaat ctgcaatgaa ttatcacatg 240
 aagtcaaaaca aggaaaggag gcaaaaagca agcagagccc tcttcctgtt ttgtagactc 300
 tgctgggtac aatctaataa aatgcttaat ctgaatattt ctgggtggcaa aactatagca 360
 accattctgt ctattaaaaa gtcagtgtgg tt 392

<210> 898
 <211> 397
 <212> DNA
 <213> Homo sapiens

<400> 898
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 agtccttgct ctgcaaaact ctacaggaac cagtgtggac ttggaggcct tagcaaaacta 120
 tcacaggaac agaaaaccaa ataccgcatg ttctcactta taactgggag ctaaactcatg 180
 agagcacaag gacacccaga gaacaacata cactggggcc ttctggagcg gggagagcat 240
 caggaaaaat aactaatgta ctaggctaaa cacctggatg atgaaataat ctgtacaacg 300
 aatccctagg atgcaagtgt acctatgtaa caaacctgca catggacccc tgacttaaaa 360
 gttaaaaaaa atgagtgtatt aaaaacatta aaaaatg 397

<210> 899
 <211> 310
 <212> DNA
 <213> Homo sapiens

<400> 899
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 tcttccaatg ggacctacca ctatgggtca agtcatctga catctacaga aaacctacat 120
 tgcttctttt aactacaaaa tataaacaaa cgtacaattt aggtaggggc ctcccacaaa 180
 ataatacct gatcagaatt atatattaag ttatgcttaa tatattatta tacattaaat 240
 atatgattta aaacaaaaaa aaaanggccca gngngggcaa ttcagctngg acttaaccag 300

gctgaacttg 310

<210> 900
<211> 315
<212> DNA
<213> Homo sapiens

<400> 900

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agaatgagga	ggaagagggg	cacctcacgt	aacaggaagc	agctacgaca	gcaaagagga	180
acagatactg	ccaaataagg	gttcatactc	atacccccac	aaaggaaatc	tcttaattgg	240
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<210> 901
<211> 343
<212> DNA
<213> Homo sapiens

<400> 901

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gcacctgtaa	tcccattctac	tcaggcggct	gaggcagaag	aatcgcttga	acccgggagg	180
cggaggttgc	agcgagccaa	gatcacacca	ctgcactcca	gcctggggcg	cagagcaaga	240
ctccgtctca	aaaaagaaaa	aaaaagaatt	ttttctaaaa	cttccaataa	aaacttaggt	300
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<210> 902
<211> 183
<212> DNA
<213> Homo sapiens

<400> 902

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gcctttgaac	tcctgggctc	aagcaacctt	cccgtctcag	cctcccaagt	agctgggact	120
acaggcgtgc	gctaccatgt	gtaatttcca	tttttaaaaa	gcacattaaa	atcagagagt	180
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<210> 903
<211> 517
<212> DNA
<213> Homo sapiens

<400> 903

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gcttaattgtt	ttatgctttc	ctgtcgctt	aaactgccaa	gaaggctggg	gcacctcaga	180
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ttggaggcag	caaggaaagt	ataaaaacaa	tgaaccaggc	caggcgcggg	ggctcacgcc	420
tgtaatccca	gcactgtggg	aggccaaggc	aggcggatca	cttgagatca	gaagttctag	480
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<210> 904
<211> 198
<212> DNA
<213> Homo sapiens

<400> 904

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attcctcttg	aagtttggcc	cgagtgtgaa	aaatgactct	tcttttaagg	actcgtata	180
aagcagaggt	gacacaga					198

<210> 905
 <211> 122
 <212> DNA
 <213> Homo sapiens

<400> 905						
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tc						122

<210> 906
 <211> 456
 <212> DNA
 <213> Homo sapiens

<400> 906						
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aagagagaca	agggctgtct	cttagggaag	gctccacata	aaactaagct	gccacatgaa	180
acttacgctt	actctgcaat	agccagaact	cagtcccatg	gccatgaaaag	atacaaggac	240
gcctctgttc	ttggaagtca	tgttctggtc	aaaactggag	gattctatca	cattagaaga	300
atgagaaaac	agacacctgg	ggaaaactac	atcttctatc	atgggaacag	cactctattc	360
aagtgaactc	acaattataa	atgaagctac	tataattctg	aacaatgtac	cacggctaaa	420
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<210> 907
 <211> 475
 <212> DNA
 <213> Homo sapiens

<400> 907						
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caggcgcttg	ccaccacgcc	tggctaattt	ttgtatttta	agtagagatg	gggtttcacc	180
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ggaatggggg	nggatatttc	atatncnccc	caccacctca	aaaatgggtgg	nccttgggag	420
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<210> 908
 <211> 426
 <212> DNA
 <213> Homo sapiens

<400> 908						
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tgaatgtatc	agagaactaa	gaaacttctg	ccagcctgag	caacttctcc	agccagggcg	180
acagagcaag	accatgtctc	aaaaaaacaa	acaaatgaaa	aaagaaattt	ctggatgagg	240
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ccatggcaat	tactacccc	acgatctgtg	aggaaatttt	tccttacact	aaacagattg	360
ggccagttnc	acactttggg	actgncagaa	aaagcctata	tatctaata	aatttattat	420
aaatag						426

<210> 909
 <211> 448
 <212> DNA

<213> Homo sapiens

<400> 909

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aaactgaagt	ggatgtcact	gtcttctgtc	ctaagaaaaa	agaggataaa	ctgtantccc	360
aaccncttcc	gaagcttgag	gcaggagaat	ggcatgaacc	cgggagggcg	agcttgtaat	420
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<210> 910

<211> 496

<212> DNA

<213> Homo sapiens

<400> 910

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ggtctggagt	tcaagaccag	cctggccaac	atggtaaaac	cccatctcta	ctaaaaatac	180
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ctccagcctg	ggcaagaaga	atgagactcc	gtctcaaaaa	aaaagaaaga	aagaaagaaa	360
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ttggcacagc	ttcacntgat	tggatgggag	aggaaatttg	aggctgggag	acctcctana	480
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<210> 911

<211> 309

<212> DNA

<213> Homo sapiens

<400> 911

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aatgtgaag	aaagtgtaaa	ggacccaatt	gagaaatgag	gtctatgttg	cccaggctgc	180
ttgtgaactc	ctggcctcaa	gcgatcctcc	tgctcaaac	tcccaaagtg	ctggaattac	240
aggatgagc	catcatat	ggctaatttt	acctcctttt	taaataaagc	tgactactac	300
tacaaaaat						309

<210> 912

<211> 188

<212> DNA

<213> Homo sapiens

<400> 912

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tcaacctccc	aaagtgtctg	gattacagga	gtgagccact	atgccccaca	tggtattatt	120
attattgtta	ttaatactac	attgtgcttc	ataaataatt	gctaaatata	caagaatatg	180
tttgtttc						188

<210> 913

<211> 659

<212> DNA

<213> Homo sapiens

<400> 913

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accctaaagg	aggagccagg	gcaccagccg	gatggaggaa	aatctcctgg	cccaagaaag	120
tgacagggga	aagactcctt	cttcccttgc	tcacacaggc	tcccaaacat	cacttcccag	180
nggaaaacaa	agtgcccatc	tccccacaaa	ggacttgtga	agctcttgga	agcaccaagc	240

aagaagactt	tgtcaagttt	cttgttcctt	gggattgttc	acccaagcca	cattggggcc	300
aagccaaaaa	tccttgaaga	agcttgggct	tgcaaaagtca	agaactcttt	ctttaccttg	360
aaccccaagg	gaagttggaa	cccggggggc	caccaagaag	ccttgatttc	ccaagnaaga	420
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cccgggccat	tggctcttgn	ccatttntta	ccaagtttgg	aaggggccacn	ttaaaatttc	540
aattgccttt	gaaacccggg	ccccttgggg	ttttcaaaaa	cccctcaacn	ttnttggecc	600
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<210> 914
 <211> 465
 <212> DNA
 <213> Homo sapiens

<400> 914						
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aaggattggg	gccatctgga	caggttgaag	aggagtagga	gggctttcgg	atgtggagaa	180
tggcatgcac	aaaagcacgg	agcaacactt	tatgccagtt	ggattatggt	ccattggggag	240
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cttaataaat	cttagtttta	aatattttgct	ttgagttttg	ttccattaat	aaagaaaata	360
agaaggaaaa	ccccnnnnnn	nnaannnnnn	nnnnangggg	cngggggggc	cntttnnnnn	420
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<210> 915
 <211> 124
 <212> DNA
 <213> Homo sapiens

<400> 915						
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aaagacgact	aaccacacaac	ctactcttct	ggaaaataca	atttaaataa	aataatttta	120
agt						124

<210> 916
 <211> 440
 <212> DNA
 <213> Homo sapiens

<400> 916						
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aagcgatcct	cctgcctcgg	cctcccaagt	agctgggatt	acaggcaccc	accgccacac	120
ccagagagt	tgacgatccc	cctgatgcgg	ctgagatggt	ctgaaatgaa	gacgttggct	180
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tacgggggtt	caccgtgcta	gccaggatga	tctcgatcta	ctgacctcgt	gatccgccc	300
cctcggcctc	ccaaagtgc	gggattatag	gcgtgagcca	ccgcgcccgg	cgggttgngg	360
gttaatatta	aggcacttgg	gtanggaaca	cagccaanaa	cgattgcagg	atgggtcctt	420
ccaggacact	tgacgtctca					440

<210> 917
 <211> 463
 <212> DNA
 <213> Homo sapiens

<400> 917						
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cagtatatag	ttcatttccc	caccgcaaga	gtaaagggct	taggggtcaga	ggctttgggtg	240
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agaagcagcg	ggacatcagg	actatggctg	gacgtcagan	aaaaacaact	taactttaaa	360
aggtggcagt	tggatggng	taacttagga	gaagaatctt	gactgggaga	cggccagact	420
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<210> 918
<211> 416
<212> DNA
<213> Homo sapiens

<400> 918
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tatggagtag ctacatggtg aaatgccggg aagatgtcca ggacaggatg tggtgacact 180
gtgggaaggc tttattgcag aagggaattc taagaagtgt gggagaacca tgaaatttag 240
cccagaagag taagaaacat tgtgccagga ttggaaagga acagctctga caaggaaaca 300
agaataggag aaaaatgccg gtgcagatag agggaggtgc taattgctct tagccaaaaa 360
cattanaagg atttgtcaaa aggagtctta cgttaaatat anaaagtctg cttctc 416

<210> 919
<211> 371
<212> DNA
<213> Homo sapiens

<400> 919
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tgacaaaata tttcttgctg ttagttgcag gagagagaaa agatgaatac tgatccacgt 180
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aaaacatggc aaggaaaata acctaaatat cctctcacta tcaagcatta aaaatggtgg 360
attaaatttt g 371

<210> 920
<211> 373
<212> DNA
<213> Homo sapiens

<400> 920
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<210> 921
<211> 441
<212> DNA
<213> Homo sapiens

<400> 921
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aagaccacga acccaccaga aggaagaaac tccgaacgca tctgaacatc agaaggggca 180
gactccagac gcgccacctt aacagctgta acactcaccg cgaggggtccg cggcttcatt 240
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gtatcactat cagttaaatc ccgcctcccc ccccccgaa atttataatt tttttaaccn 360
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<210> 922
<211> 341
<212> DNA
<213> Homo sapiens

<400> 922

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aatacttgca	actgtctgca	gggcctcgga	gacatgggccc	aaatgggttt	ccctcccgaa	180
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tcacctgcaa	aggggttctac	tggttaaaata	aataaacaata	ataaacccctc	tcttttataa	300
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<210> 923

<211> 639

<212> DNA

<213> Homo sapiens

<400> 923

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gggcagtggt	gcaaacaggg	ctcacaggga	gaggctgctc	tgccctcctag	gatcaaggga	180
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<210> 924

<211> 322

<212> DNA

<213> Homo sapiens

<400> 924

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tgtaagagaa	ggaatggggg	acaagatcta	gggctgcagg	attaaaaaaa	caaccaaacc	180
aaacagctgc	tactcttcat	acgcgtcatt	attcctttcc	ctttattttg	tgaaatattt	240
aagtattttt	ataaattgtg	atattagctg	cttaaagtat	tgtaaataaa	attaaatatt	300
gtaattaaag	atgtatatat	at				322

<210> 925

<211> 307

<212> DNA

<213> Homo sapiens

<400> 925

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ccagatgaaa	aggaactgag	agatgcctct	gaccaacagc	agaggaggaa	atgaatctgg	120
aaacaaccat	gtgaataaat	ctgagaatga	atgcaaccct	agctgaacct	taaagtacca	180
tctgacacct	tcattacagc	cttgtgatag	actgagagcc	agaggaccca	gatgaaccac	240
actgggtacc	tgaccacag	aagctacaag	ataaatgggt	gctgcgataa	taaatgggta	300
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<210> 926

<211> 410

<212> DNA

<213> Homo sapiens

<400> 926

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tctctcttcc	tccatactcc	caaggcacct	gagggtctggc	tcttcagggt	gtgtgacgac	180
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cggtgtcctt	acaagaagag	aagacaggac	acgncacaa	agcgagggtc	agccatgtga	300
ggacagttag	aaggcggccg	tcacacccca	aggagagagg	cctgggaana	aaccaacctt	360
acaccttgac	atcaaaacttn	tgggtctccaa	aactgtagga	aaataaattt		410

<210> 927
 <211> 668
 <212> DNA
 <213> Homo sapiens

<400> 927						
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aggcaccac	cttcgtgcc	agctaatttt	ttgtttgtat	ttttgtagag	accgggtttc	180
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cccaaagtgc	tgggatgaca	ggcttcagcc	accgtgcccc	gccaagatca	agttgttgtt	300
ggcagggtcg	cactccctgc	aaaggctgta	ggagacaacc	catctttgct	tcttccagct	360
tctaggggct	tccgcagcat	gccttggtgc	gtggctgcat	tactccaatc		420
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aggacagtta	tcattggatt	taagtgcctt	cctggatgat	ccaggatgat	ctcatctcaa	540
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ttncgaggat	aaaggacttg	gatacatctt	tttgggangn	caccattcaa	cacactacac	660
taataaaa						668

<210> 928
 <211> 484
 <212> DNA
 <213> Homo sapiens

<400> 928						
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agagctgaag	tctgcctttg	ttactcagga	gtctggaaact	cctggagttg	aaactcctag	180
cctcaagcaa	tctcctgccc	tgggcctcct	gaagtattga	aatgagatct	ctctaagtgc	240
ctcaggctgg	acacaaactc	ctgggctcaa	gtgatccttc	tgcctcagcc	tccctagtag	300
ttgggactac	agagaatttc	cctaggtcaa	atggcaccca	gaaactgcct	cctctacctt	360
gaaagctaca	ctgtcttaac	cttgaccaat	ggctgactga	tgtgggaatn	caaaagtcct	420
cctncttgtc	tcaaggatgg	agccttgctc	tgtcactcaa	gctggaacgc	aatcgcgcga	480
tagg						484

<210> 929
 <211> 379
 <212> DNA
 <213> Homo sapiens

<400> 929						
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cctcactctg	agggcaggct	gaacacctta	gggaccatca	acccccggng	gtgtcggttc	120
cagtgaatac	cgaactccgg	gatgtagccg	gattgganag	aagcgagtgg	cgctgcgccc	180
cccttctctg	ggcggatgga	tgaacgtttc	ctccaaacct	ctnaagagcc	cgtgggattt	240
taccctttca	cctgcctccg	cttctgctgt	atcttgtccc	agttcggtta	gtgtgaaggt	300
ctcagcagcc	acacctcgac	agcataccgg	gaactctcaa	tactcctcta	cccattagca	360
ataaacaatc	caaaaattc					379

<210> 930
 <211> 62
 <212> DNA
 <213> Homo sapiens

<400> 930						
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ca						62

<210> 931
<211> 418
<212> DNA
<213> Homo sapiens

<400> 931
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gcttcactcc cgacgtctgt tcaggtcaca atttctacag cagagacctt gagggatata 120
tttcttcact cctcttcact tcttcaacag agtttcgctc ttgtcaccca gcctggagt 180
caatagtgcc gtcttggtc acagcagcct ccgcctcctg ggttgaagca attctcctgc 240
ctcacctcct gagtagctgg gattacaggc atgcaccacc gcgcccagct aattttgtat 300
ttttagtaga gacgggactt ctccatattg gtcaggctgg tctcaaactc ctaacctcat 360
gtgatccacc ctctcgggcc tcccaaagtg ctgggatgac aggcgagtta agcgctg 418

<210> 932
<211> 83
<212> DNA
<213> Homo sapiens

<400> 932
gtgncggtgn agntggncct gcagngccga tccttncncc ctagtcnnga tgccttgga 60
acctcttttc ataattctga cct 83

<210> 933
<211> 369
<212> DNA
<213> Homo sapiens

<400> 933
ggtttgcatc gccagcttct atatattacc ggcccttttt ttttgctggg atattatctn 60
tgnaaaaacg ggggaanact acccttgtnt gctggggagg ggaccgngg aaatggtttg 120
ggatatatga aaattacntc cnggagggat tttcctgaan aanataanaa aacctntggg 180
ggaaatTTTT gaaaaaattc catccaatac cgtngaaagt cttcaaaaat gcttgctcca 240
agtttcactt gataccngct tgnttcttga aatttgaaag gggacattgt ttttttatga 300
caagnnggaa agcttatgct aaatcctggg atngggngn cncctttgta attaaaaaaa 360
tccccccc 369

<210> 934
<211> 475
<212> DNA
<213> Homo sapiens

<400> 934
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cctcattgct ggaggcagtc gctgttaaca tcttggtggc aacactgagc ttcattggctg 120
actcttcaca atttgatggg gatcttgcta tgttgcccag gctgaccttg aactcctgac 180
ctcaagctgc cctcttgct cagcctccc agttgctggg attacaggtg tgagctgctg 240
cacctggcgg atttantttt ctgtatgaga tttggtaact tgaatatttc tttcatccag 300
gagagagtta ttgcttctat gtgcagatct tatttgcatt tgggatcacg gactggaaag 360
ggctcagggg tttatatcat tgcaccgatt taaaaaagt gttgacagcg gggagganga 420
tctgaaatca gggccttcnc gaggaggctg gctgacctn atttctgct ggctt 475

<210> 935
<211> 486
<212> DNA
<213> Homo sapiens

<400> 935
gagagaggga tctcattatg actgagaaaa aaatatcaag gaagagttgc aacatgtcat 60
ttgcctccct ctggcctcat tggtattttc tcattctctc ctcccatatt ttgnaagagt 120
gcattgattt attgccattt tcatttttta aaacatcttc ctctacctc aacaagcatt 180
tttgcccaa gcgagtatta acaacttccc cccagttctc cttgtgttcc tctgtcgagt 240

gttctttatcc	attccatttg	tnaaaaaagg	aattctntgg	gccagcacia	agcatctgct	300
gcttctatcc	aggcaaagaa	agatgggtggc	atgggggtttt	tatttactga	aggctggggac	360
gaacgcagag	ctaagtgtgc	attcctgggtg	ctcctgggctt	tgtagggtgat	acaaaaagctg	420
gtnnncttgg	caagaaanaa	aancccttcc	agaangcaaa	atcaatgccg	gcnccccact	480
tcacca						486

<210> 936
 <211> 506
 <212> DNA
 <213> Homo sapiens

<400> 936						
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cctccacctc	ccagggttcaa	gcaattctcc	tgcctcagcc	tcccaagtag	ctgggattac	120
agatgaggtc	tccaagggac	cagatggaga	acagatgcaa	ccacactgaa	gtcagaatcg	180
cagcttgect	ccgacacctg	acgcttctact	gttggcgagg	cccactatgc	ctcgctctcc	240
ccctggaatg	agttctatcc	cagaggctcc	tatacccttt	agaaataaac	tgctcaggca	300
gcccaccag	ttcatccaag	aggcctggaa	ccacagcagc	gtcgacagct	gagatgagag	360
ttgggtccctg	atcttataca	nanccgggt	ttaagtttga	nttctttctt	ttccttgnca	420
agaacnttta	aaaaaaaaact	ttttgggggc	cggggcattt	tcctgggtnt	tttcnaacc	480
naaaaaaaga	nttttttttt	aaaacc				506

<210> 937
 <211> 172
 <212> DNA
 <213> Homo sapiens

<400> 937						
ctttcccacg	ggngngnctt	gccccttccc	tgggtgggggc	tccnntgggg	gaaanaaagg	60
ggganccaat	naaaaaaaaaa	tgcggggacn	tctcatgatg	acctgggncc	ttgggtntttt	120
tnaaataaan	cctntttttt	taccttggtc	caataaaaaa	gctgaacttt	tt	172

<210> 938
 <211> 592
 <212> DNA
 <213> Homo sapiens

<400> 938						
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tcaaggtntt	tgtaataaag	aagatttttt	ggatggatga	agaaagatnn	ctttattcna	120
gcacccaaaa	aagccaaaag	cnttttaant	gcccatatta	ttgtcccca	agaaaattgg	180
tataccaggg	accctgggct	taancttatt	tcatttgcn	tggcagggta	ccattaaaag	240
aaaacaatta	ngatgcccgn	acccaaaaat	gccaattacc	ctgggaagga	accagaccat	300
tagaggttgg	gaaaaattat	tntgggntat	tggggaaaagg	ggtattttccc	aacaaaaaaa	360
aggaccattg	ggattgaaaa	aggaccggaa	cgactttctt	tggaaccaag	aaaaaacccc	420
canggaaaaa	ggtcaaaaaa	aaaaaggaaa	gccnccana	gaatggattt	tcttgggaatg	480
gaaatantgg	antgggaang	aaccgacttn	ttgcaangcc	ctcnaacttt	ttatttttca	540
accnccaag	gncttggttt	caaacccttt	caagggaang	gggttttcaa	aa	592

<210> 939
 <211> 405
 <212> DNA
 <213> Homo sapiens

<400> 939						
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ctcgagttca	agcgattctc	ctgcctcagc	ctcccagagta	gctgggatta	cagacgcgcg	120
ccacccccacc	cagatgatct	ttttaaatgc	aaaatgccat	cgacgcaaaa	aatcaaagaa	180
tcagcttaag	ttccagaaaa	aagaaaaacc	naccnaatga	acnatnagac	naccnccncc	240
nccacaaaaa	aagnctttttg	gggatttttg	gaaatatttg	ngtntnatte	ntntacttta	300
ccngngagaa	aagagnnttt	ttttanaant	ngnccntcca	anatggagat	ttaaaattca	360
tttanggtctt	ttggaaangg	ttcttaaaan	aaatggattt	ggggg		405

<210> 940
 <211> 147
 <212> DNA
 <213> Homo sapiens

<400> 940
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 tttcccacat ctattatttc attttatcat tgtaactgtg actttcaaaa gaatgngagg 120
 gcataattaa acatttactc acgaacc 147

<210> 941
 <211> 224
 <212> DNA
 <213> Homo sapiens

<400> 941
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 gtgttctctg tgaccagta gtgtgaattg cttatctgtt tctgcattaa ctcaaattta 120
 tcagtgatta ttgctgaat acctcatgct ttctgagatc tacagggtaca gatttagggg 180
 tgaactcttt ctctaaataa atttaatcca tgtgtgttaa aaag 224

<210> 942
 <211> 471
 <212> DNA
 <213> Homo sapiens

<400> 942
 agccaataaa ttttcttggg gctcacatgt tttcataggc ccctgaaaag cccggaggcc 60
 ctgggtactg tgcctttagt gccacgtgga aagaacagct tgggctcagg acttcagggtg 120
 gtctccaccc ggccactgga gagaatgaga caaaaaagcc ccagatgagg agactcaaga 180
 agctatgaaa ggtgaaggca tttgctcaga gtcacacagc tactgaggag caaaccaagg 240
 atttaaccct tcatcccttt agctttgagg atctttcagc tgcccagtgc ccgtgaagat 300
 gaataaatat taactattac tattatcatt atcagaatct tctctccct gaaggaatta 360
 aagaaaaaaa aaagcctcct nattctacc gggtactnac tggngaacc angggaaang 420
 gacttaatct ggcngggcct cagtttgtca cctataaaaag ggggatatag g 471

<210> 943
 <211> 341
 <212> DNA
 <213> Homo sapiens

<400> 943
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 ctagccaaaa aaagctggaa ngggggnccc ccanaaagtt ccaagtttgg atgggtggat 120
 aaanaaaatc atttcctnng ganggacant tccgggaang gcactcttac gctttccnaa 180
 aatcantctc ttacccttca aagggctttt atgcttgctt aaaggcaagg gccanccccc 240
 cgagtttngg ctggggacct cttaaattta ttgggggggc nctccccctt gaatggtgng 300
 gaaaaagggg gggggccttc ccttcattta aaaaaggtgg t 341

<210> 944
 <211> 469
 <212> DNA
 <213> Homo sapiens

<400> 944
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 tgacgcgatg aanaaaaggg cggcccttct ttcattatgt tctgatccga cacatggcct 120
 tgaccagaag ccaagcagat gctggcacca tgctcttctg acttcccagc atgcagaacc 180
 ctgagagaca gtgtttcacc atgttggtcca ggcttgctct aaactcctgg gctcaagtga 240
 tcttcccacc tcagcctgac aaagtattgg gattacaggg gtgagccacc atgcctgacc 300
 taaaacattt tcatcacctc aaaaatatct tttatgctct ttccaagtta atcaagcttc 360
 tcacccccac cccaaatcca ggcagctgnt gggctgcttt ctgnactat aaataanaag 420

nggatttttaa nagctcacat aaanggaacc atacagaata taatctttg

469

<210> 945
<211> 285
<212> DNA
<213> Homo sapiens

<400> 945
cacaaagatt gagaaaatgc tgttgncccc caagaaaaga gatttttcag caagatgtgg 60
ggaagaccag taatgaaagg gttgtgagat cttgaatttg caagtaatag actgcctcct 120
ggaccttccc cattgagatc tgtcctctga tatgagttag gaatcttttt gtccatatct 180
tgagcatttt aaacaaaagt taagcttcac tttanattaa actgcatctc caaactttct 240
ttgaaaacta atgctgttag aaataaaaga caagtttgta tatgt 285

<210> 946
<211> 438
<212> DNA
<213> Homo sapiens

<400> 946
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cgggatcaat tccncccccc ccctaacgtt actggcccaa nccgcttgga ataaagcccg 120
ggggcgnttg nctatatgnt atttnccacc atattgcctt nttttggcaa tgggagggcc 180
cggaaacctg gccctgtctt tttgacgaac attcctaagg gtcttttccc tctcgccaaa 240
ggaatgccag gtctggtgaa tgtcctgaaa gaaacagttc ctttgggaaa ctttttgaaa 300
acaaacaaac gttttgtaac gaccctttgc angcagngga acccccacac ttggcgaaan 360
ggtgnccttt tggnggccaa aanccccgtt gtatnaaaaa ncccctggaa aaggngggga 420
naaaccccaa gggccccc 438

<210> 947
<211> 172
<212> DNA
<213> Homo sapiens

<400> 947
aaacttataa gggggatact tatataaaca cantggccac atttccaaat cttctttttca 60
atcccagctg gtggattaaa catttttttg gaaagtaacc tcctattata aaattaaaag 120
ccaatattaa gagtttttnc caatcaagaa tggtcnataa aattttttaac tt 172

<210> 948
<211> 191
<212> DNA
<213> Homo sapiens

<400> 948
atgctgcact taaaaggatg cttgttttga tgnccctgctc attgttntcc ctatgaagta 60
tcaagtaatc catcctagag ggggngttct ttttaanaat ttgagaagga aaacgtacnt 120
cccanctnct tttatataat gcgagcaaac aaaatatttg ttacaacact tcattcaaact 180
ttattttaata t 191

<210> 949
<211> 516
<212> DNA
<213> Homo sapiens

<400> 949
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aggagtcca gaccagcctg gccaacacgg cgaaacccca tctntactaa aaatacaaaa 120
aattanccag gcctgggtga gcacgcttgt aatcccangt actnngggagg ctaaggcagg 180
agnatcactt gaacccangn ganctgcag tgatctgaga tcgtgccact gcactccagc 240
ttgggcaaca gaacacagac tccntcttaa aaagaagaaa gaaagaactt ctatttttta 300
aangtttttt cttttcattg aactccatnt atngcctttc cattcaaagc ataaagatta 360

aattttaaaa	caaggcttgg	ccccctggct	tatgcctgta	atcccancac	tttnttgagg	420
ccaaggnngg	cgggatcacc	tgancatcaa	ngnttagaat	ccntnctggn	taacattggg	480
gnaacccccct	tncntaaga	agaacccccat	ttttta			516

<210> 950
 <211> 503
 <212> DNA
 <213> Homo sapiens

<400> 950						
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atttacgaag	agcaaatgga	agcgaaaacc	cctttnttct	tttgggccgg	ctgtgtattg	120
ctggggcact	tgggcagacc	cccaaagaca	tccttaaaga	caagagaaat	cgggggctgt	180
gtgaagatgt	cacatctgca	gatagggttc	gaggtagagc	ggccttttgg	gttttctcct	240
catttgagg	aattgagaag	tagcacggaa	gacctccana	cccagagctt	gtgtacggca	300
cagtccttga	aggatttgc	cccattctca	gggagcaaga	cccattctta	acgtggaaac	360
aaatacacga	gagtaataca	tacttgaggc	ttaatgnaaa	gttaattcct	cttggcacag	420
ccccagatat	cttgaataaa	tggtctgcga	agtgcgtgaa	tatcttgata	atgnccggtt	480
tacttttgan	tatataatca	att				503

<210> 951
 <211> 472
 <212> DNA
 <213> Homo sapiens

<400> 951						
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ctgngagcca	accaaggaca	gcctgactcc	anaagataca	ttcttccgaa	ataagacata	120
aagccttttg	tccagtagca	cgatcgaggc	tactctgcat	acagatggag	tttcaactctt	180
gttgcccgag	ctggagtgc	atgggtgccat	cttgactcac	tgcaacctcc	acctcccagg	240
ttcaacggat	tctcctgcct	cagcctccca	agtagctggg	attacagaga	tacgattttg	300
ccatgttgcc	caggctgggtc	ttgaactctg	cgctcaagcg	atccacctgc	ctcgacctcc	360
caaagnngtg	ggattacaga	catgagcccc	tgccgctggc	cagcttcacg	catattgnta	420
taatcttcat	ggacaaatcg	aaactcaaan	ggagntttgc	tcttggttgc	ca	472

<210> 952
 <211> 476
 <212> DNA
 <213> Homo sapiens

<400> 952						
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cctccacctc	ctgtcctggg	ttcaagcgag	tctcctgcct	cagcctctgg	agtagctggg	120
actacaggag	gagcaagtgc	cattctgcct	caagacccta	acccaggcat	ctgaatctct	180
cctgagtgg	ctcccttcat	tccttttcag	ctccacttgg	cctagtgaac	tccgactcat	240
tctgcaagtc	ccagtacacc	ttctttaaca	gtctgcatga	ggcagactct	cacagttcac	300
tctatatttc	ttccatgaca	ctcttcccaa	atgtaactaa	aggattactt	gtataatttt	360
tccttttagca	tttgtttttc	aaactagact	gcagctcact	ggaagcaggt	cactgaaatt	420
tagaaggccc	aaccaacatc	ttttaaatga	aatcaataaa	gcaaagatgg	cacaag	476

<210> 953
 <211> 353
 <212> DNA
 <213> Homo sapiens

<400> 953						
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ggggataact	acctgcagag	aggagctatc	ctctttgctg	agagcttcag	aggcctgcag	120
agacatctga	acaacctgcc	tacaaagagg	agccaccctc	ttcagagcct	cctctctgct	180
gagaacagca	gacagcagga	tgaccagtgg	gcagagaaga	gctaccccc	ccagggcctc	240
ctctttgctg	acagctgaac	actccatggg	atgacctgcc	tacagagagg	agctaccac	300
ttccggtctc	ttctgagcca	ttctaact	aaataaaatt	cttcttcac	ttc	353

<210> 954
 <211> 326
 <212> DNA
 <213> Homo sapiens

<400> 954
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 ttacacgaa gtttcaccac cttgcccagg atgggttttca actcctgagc tcaagcaatt 120
 cgccaacctc agcctctcaa agtggtggga ttacaggcag gagccaccaa gcctggcctt 180
 acgtacatct tttagactctc caaaaactta actactaata cccttctgct gaccagaagc 240
 cttagtagta acataaacag tcgattaaca catattttgt atgtttcatg tattatatac 300
 tgtattctta caataaaata agctag 326

<210> 955
 <211> 140
 <212> DNA
 <213> Homo sapiens

<400> 955
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 ctcaactgcgc atgcctccat cttcgaagag ctctgttca ctgtactctg aaatagactg 120
 tgcaaaacat taaaactgac 140

<210> 956
 <211> 245
 <212> DNA
 <213> Homo sapiens

<400> 956
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 agcagcagct ggacattgga gactacagtc ggagaggagt tcaaccagag atagtgtggag 120
 agaagtttgg tcagacagcc gaactccagg gaaataccac cttctcgctc catccccctt 180
 ccagtcctcc ctccactgg aagccacttt tatcagcaat aaaatcctcc gcgttcaaca 240
 ccctc 245

<210> 957
 <211> 373
 <212> DNA
 <213> Homo sapiens

<400> 957
 gagggcatcc caggagaagg cagagtccag gaggcggatg ttgggaagca aatcctgaac 60
 tcatcaagtc ccatagcccc ttgtctatg gaccttctgc cagcatcttc tgtaagacta 120
 ttaaaatgca ccaacccaag gtctccagtg ctgctgagtc ccccggtgca cctcctgcaa 180
 ctgccacagt tgtcaacagc tcaaatccta gagaccttct tcattaggtc aatgagtatc 240
 taaactttta aaaataaata aaggggtaat tattagcttg ccccccattc caacaaaaaa 300
 aaaanggcc gngnggccan ttcanntnga anttanccag gntgaacttg ntnaaaaggg 360
 ggggactacc caa 373

<210> 958
 <211> 412
 <212> DNA
 <213> Homo sapiens

<400> 958
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 ggcctccgct gctgacctct gaaacacaat tcccagctctg actacggaaa ctgttcagtt 120
 tgatcctttc aacttatttg aatcctgaca aataagctca cagctgaaaag gtcaacatag 180
 tcgtatttca tcttccagag ctgttcttaa gacatctgca caacaaagca cttcttatag 240
 cacctgacat gggccctcaa tggcactgta cctcattaaa aatgtcccct gcatgcgcac 300
 gcattccaag gcacatggtc tggatgatgg ttaccaata agtgtttaca gaagggttag 360
 taaacaaggc agattgtcaa cttttccaat aaagcgtcac tatagtgcctg aa 412

<210> 959
 <211> 248
 <212> DNA
 <213> Homo sapiens

<400> 959
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 ctcgccctcc caaagtgtctg gaattacagg cttgagccac catgcccagc caaccctata 120
 gctttgtctcc acctgggagg agctggagga caaaggactt cacagaagaa tggagtccca 180
 aagaaacagc ttcaggaact gaggagagcc agaaatttaa tgtatttagg gctcccttgt 240
 gaaaacac 248

<210> 960
 <211> 455
 <212> DNA
 <213> Homo sapiens

<400> 960
 tgactgaaac gctgaaccaa gcttggagct ggagcagcca ttttgggcca cgaggtagaa 60
 gccatgtgtt gaagagaatg gaacaagatg gaagaaacct ggtgatcagg gagccgccat 120
 aacagtcttg ggttgtctct gtttacatga gagatgagga aactgaggct cagagaggtt 180
 aaatatcttc ctcaagaatt ttgccagag ctgggatttg aaccaaggct tgcttgactt 240
 agaaggcagt ggtccttgct ttctcccgag gagaaggag cagagatacc taaagatgcc 300
 tgactcccaa tcccatggga acatgcccc tgcgggctca ctctctctc tctttgtctt 360
 caatttctaa gaatgtcttc ttttactaa aacaaaacac tccagaatgc attctgcatg 420
 aataaagact gccactcca tggcagaaat aacat 455

<210> 961
 <211> 443
 <212> DNA
 <213> Homo sapiens

<400> 961
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 tctccctac cctgtcaca agggctgatg tgtggctctc caaccatcac tccattgctc 180
 ctcaagtggg cagtgggaagg acaaatgtat ttcagcccca aagcacaat cacctgattc 240
 aaccctcatg ggtgacctag tcaagtggcc acctctgggc cctacatcag cctgcccttc 300
 cttttatcat accacctgtc taactgtatt ataaggatct ttttccatga ctaaattttt 360
 ttttgaaaac aaaaaaaaaa aagggncnng gggnncttn nnntnggnct tnannngggg 420
 gaantnttn aaaagggggg ggg 443

<210> 962
 <211> 397
 <212> DNA
 <213> Homo sapiens

<400> 962
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 tgcgcccccg ttgttcccc gccgacagag gcttgatgcc gcttcaagtg cccgcagtta 120
 tttttgtcag ccatoctctc ctccactcc tcccaaagaa agcattcagt gattcatcgg 180
 gagaccggga gacatctgac ggttgcctcag ctggtatccg gccactgagg ggaaggagga 240
 gtgtgttgat gtcccccttg actctccttg aagaaactgc atagattcac agactcctgg 300
 aaaatcagaa tccagaatgt gcacatgata cacgtttggg gtgtgtgttt atttgtattc 360
 actcacggat tcaacaaata tttgttgatt acctgcc 397

<210> 963
 <211> 554
 <212> DNA
 <213> Homo sapiens

<400> 963

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gaagctgcca	tgctgaaaag	gccaattggg	agaccacata	gagaccgaga	gagacttcca	120
aggactccag	ccaatcctgg	gccccagcag	tttgaatctc	ccagcaatgc	caccatacag	180
gagaggggagc	aaatactcan	aagattcaag	tgccagctgc	atgggttgat	acctacataa	240
aaggcattgg	cattattcac	aagagccaag	atatggaaat	aacctgtgtc	cattgacaga	300
cgaatagatg	agggaaacgt	ggcatataca	cacagtggaa	tattattcgg	acttaaaaaa	360
agaaggaaat	cctgaatcct	gctatttctg	acaacatgag	actgcaggac	gttatggaan	420
tggcccatca	tgctcttnta	aaacttttnc	tccctcagnc	aanaaggggg	agcctattta	480
ccctggncct	tgaantggaa	naaggacttt	tgccctggcn	ttgtttttan	catccccctg	540
ntgaaaaaaa	aacc					554

<210> 964

<211> 131

<212> DNA

<213> Homo sapiens

<400> 964

atTTTTcttg	gattttatTT	ccctttcaat	ggcctactct	cagtgttggt	gtctgagctt	60
cctctgtgtg	gaacagaaga	tttttaaacc	tgtatatTTA	tagcaaacia	tgaatctcta	120
aatagtTctc	c					131

<210> 965

<211> 305

<212> DNA

<213> Homo sapiens

<400> 965

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ccagtttatt	acaaccatgc	tcactcctct	acctgccttg	ccccaatcgg	tgcaaactgc	180
cttctccagt	cttgcttctc	ctctaataca	taggtgtgtc	ctgtttttaag	aaggcaagtg	240
gccagtgaga	gccttaaact	accttagtgt	tctctaaata	agatatgcct	ccatggagtt	300
gtaag						305

<210> 966

<211> 601

<212> DNA

<213> Homo sapiens

<400> 966

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ttcaacgtgg	cattcgaggc	gcaaggaaaa	acctgcctat	cccaagatct	cagcccatc	180
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atgagatttg	agtcaagaag	gatgacctag	caataacctc	tatatatctc	attatgccaa	300
tacttaaattg	gctacataag	aggacagtcc	agtgcagagc	atggaaaagag	gcttagaggt	360
catctcattc	atcacacat	tttacagagg	aaagcaaaat	gccatccaga	gaaggaaagt	420
cacaaagcca	tctaacccca	gacctgggag	tagcagctga	tcacagcggg	tcggacacaa	480
gaagctgctt	ncaaaaatct	tttctttcat	ttggctacag	agaagacatc	agaaaacaaa	540
antttataac	atggctctag	ctctaactca	ctattcacta	aaggggccaa	ttaatagggg	600
a						601

<210> 967

<211> 161

<212> DNA

<213> Homo sapiens

<400> 967

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ccacctcagc	ctctcgagga	gctgggacta	caggcgtgca	ccatcatttc	ctcctaaaaat	120
tgtatgtgct	gcatatataa	aatgataaat	gctttacata	t		161

<210> 968
 <211> 315
 <212> DNA
 <213> Homo sapiens

<400> 968
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 tgcaagtgcg ccagcagtga agtaggagggc ttggacacag ggagagataa atgtgggttc 120
 ttctaagaca gatgcaggat ccagcttatt ccttgaagtt tccagtgttc tgcactctac 180
 tacttgacat ccatctttcc ttcatgaccc cctgctctat aacttcaggc tcagcaccaa 240
 acagaataaa cagttgaatt aagtatggct actacataag gtcagatctc tataataaat 300
 tctttactct acctc 315

<210> 969
 <211> 280
 <212> DNA
 <213> Homo sapiens

<400> 969
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 ttctttttca ttcttttctg ggcaaattcta aaccttttga gaagtagatg agtgaagtca 120
 attgcaaaga agaggagttt gggacacaga cttgtgtgag gacacaggga gaagacagcg 180
 tctacaagcc aaggagagaa gactcaggag gaaccagcct tgcccacacc ttgatcttgg 240
 acttccagcc tccagagcat aagagaataa atttctgttg 280

<210> 970
 <211> 587
 <212> DNA
 <213> Homo sapiens

<400> 970
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 tgttcgtatt ttttgtaaag atgggggtttc accatattgc ccaggctggg ttctgaactct 180
 ttgagatcaa gtgatctgcc tgccctcagcc tcccaaagtg ctggaattac agtgctctga 240
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 ggagccagtc tgcactgacc cactgaagaa atgggtcccc ggggcttgac tttgtatttt 420
 aaaaaaagtc cgcaagtcaa cctaaagact gtagctttca accactgatg tctcgggtgn 480
 acacttgaca tttggaaaan tnggctgggtc atttcacccc acctatcatg gtccctttnt 540
 tttactgagg gtccaaaaca caaatcacc ttagaatcat ttggttt 587

<210> 971
 <211> 485
 <212> DNA
 <213> Homo sapiens

<400> 971
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 cactcaggcc caagcctgac accttgagg acacgctgga gacacgtgga aagttgacca 120
 ggaacagagc caagtacttc ccaggctccg tgggcatcaa agggattgca ccttttccag 180
 acccaatcca cagctgcagg cagcaggcag gagtctgcac tgacaaacga ctacactctg 240
 cacactgctt gattccagaa cctgcgttct gacaccgatc acacctgcca tcccctgccg 300
 ggcccaacct cactcaggaa tgctgcgac ccagcagcct gtcgtgggct gtgctgcgaa 360
 tgccacacat gggccaggct ctctctcccg caggcctttc cagctgtcct ctgcagcttc 420
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 gtatt 485

<210> 972
 <211> 221
 <212> DNA
 <213> Homo sapiens

<400> 972
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 gttggagata caaattgaag ccagccccag ttcaaaactg ttacaaatgg agtctgtagg 120
 catgaggggc tgactatata actcagagtt ctccagtact ttactttaat aaagaacaca 180
 atctttatta aaggataagt aataaaaatg tgttgatgtg c 221

<210> 973
 <211> 582
 <212> DNA
 <213> Homo sapiens

<400> 973
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 ctttaccaag aaagttgccg tggaccctta ggtcacatag cctgaccatg ctccagatgaa 120
 ccaatggtgc aaccacagga ggaacctaaag tgctcagctg agaagcaggg actgaatcaa 180
 gcagcagaca cgatgataaa gtttgatgtt ttgtcccttc aaaatctcat gttaaaatat 240
 gaccccaatg ttgagagtgg ggtctaataa gggagtcctc ccaagaatgg cttagtgccc 300
 tccaagagga aatggctggg aataagttta cacgagattc ggttgtaaaa aagagcctag 360
 caccctctcc cttctccctt gctccctctc ttgcatgtga cacacctgct tccccttgct 420
 tctaccatga gtaaaagctt cctgagatct caccagaagc caagcagatg ctggtgccat 480
 gcttgctcagc ctgcanaact gtgagccaag taagcctctt ttctttataa attaccaaat 540
 ctccaggtttt catttatata atgaaaaaca aacctatatt ac 582

<210> 974
 <211> 223
 <212> DNA
 <213> Homo sapiens

<400> 974
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 acgttctgcc gtctcagaat cccagcgggg cacagcaggc cagaaatgct ttctcttttt 120
 taaaggactt accattccgt attctgagcc tcagtggctt atctcatgtc gtgagtcacca 180
 ttaagccagc cacttgagcc agctcaataa aatgctccaa tgg 223

<210> 975
 <211> 536
 <212> DNA
 <213> Homo sapiens

<400> 975
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 agaggtgaag tgtttggatt cagtctgagc caaaggccac tttatctggg ttttaaggaca 180
 caagactccg tgaaagacaa gctagtctct cttcctgccc cgggagtcca ctgcaggccg 240
 atgcagacgc aaccacttcc tcagccgctg tggctgagag cccgccactg cactctatgg 300
 gcttggtgct gggataggag aggagggatg gacatagccc ctgccctcag agttttttcc 360
 tactcattat ccctgctgtc tctggggact tcttaaatgt cagcaatcat tgtcatcttc 420
 actgttgctc cgcagcaccg cacatggctg cacctggggc atctnctctg atgtaaaggc 480
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<210> 976
 <211> 142
 <212> DNA
 <213> Homo sapiens

<400> 976
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 tcacagcgaa cctcggtcac tgacactcaa aagaaggaat tattttcaact caataataaa 120
 caaataaacc tatttttaaaa cc 142

<210> 977
 <211> 345

<212> DNA
<213> Homo sapiens

<400> 977
ctctaccatg tgaagattgt gcctgcttcc tctttgcctt ccaccatcat tgtaagtttc 60
ccgaggcctc cccagctatg cctcctgcac agcctgcaga actattacag ggagcaactt 120
gaatttaatn cttctgattc caagtgtggt gttctgcctg tgcatacggg agaaggacga 180
caccaggaa tgtgccact gcagatggga gctggaagaa actgccgtta tgtggagctc 240
aatgtctcct tttgggtatt ttgatgcatg tttggggagg gacttttgct gtcccagtcg 300
attgtcttga antttaaagg ttatccttaa aactcatgct tcctt 345

<210> 978
<211> 204
<212> DNA
<213> Homo sapiens

<400> 978
aaacgaaaat ggacggccat atgtcacaag agaataaagt ctttgctccc aatccctgtc 60
ttcagagctg acctagaagc cagccactcc actcagaccc aattcggatc actatgttcg 120
tgaggacttt aacagcatca ggagctccct ctgactgcta tatgaagaga actgcactcc 180
tgcccagagca acagagcaag actg 204

<210> 979
<211> 309
<212> DNA
<213> Homo sapiens

<400> 979
gcctctctgt tccttgagac acagcaatat tgaaattggg ccaatgaata accctacagt 60
agcctatcat tcactttggg gaacggaagc tgttgtgagc aaccctatgt gagcctcctg 120
tcctcagcta catcgatgag cttggcagtg aattatctag tcccatccaa gcttcagaa 180
gactgcagcc ccagctgaca gcttgactgc aacctcatga atgtttctga gctaggacca 240
cccagttgct tctgaattcc tcaccctcag aaactatgat acaataagtg ctgattattt 300
taaattgct 309

<210> 980
<211> 589
<212> DNA
<213> Homo sapiens

<400> 980
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tagctgggac cacacaccaa ccttccaagg acccactggg agccctactc acacggactg 120
tgccagagc cctggccaag gggttctcag tggggaatat gctcaattca tcttggaaga 180
ttcagccaac tctccaccag aaagtcatca tcaacagccc ctaccctcga ccatggatga 240
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ggcggaggca ggacagccat cctcaagctg cgactcgcgc tacgaacact ctntacaccc 480
aggccttgct gtgtccatgg tctcctgggc agatcttggc caagggtgtg ctttaggttg 540
cctcatctgc gtccggncca ngcctgcccg ccggccggtt gggttcttg 589

<210> 981
<211> 259
<212> DNA
<213> Homo sapiens

<400> 981
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actccatcaa ggtggacaga cactcaacgc cctggtagat aacaaagaca acgggtggagc 120
agcaataaag aaatctaaca aggtctcaaa ggaacagcaa atgaatttca attttaaaag 180
gacatgggtc attctagaaa tcaatgtgtg tgcaatccaa cagttccata tataaatacc 240

agaaaatatt tatgaagcg

259

<210> 982
<211> 191
<212> DNA
<213> Homo sapiens

<400> 982

gtgagcacac	cagatgctgg	agcactcctg	ggaagagaaa	cagaaagagg	aggaggaagg	60
gtgccaaaaa	caatgtctta	tttggccatt	tttcccttga	ccctaattgct	agaaaggaag	120
gagagagggg	agcttaaata	atttataaaa	tcctggtgaa	ttgtcaatta	agtaaatcct	180
ttttaaaatt	t					191

<210> 983
<211> 620
<212> DNA
<213> Homo sapiens

<400> 983

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gagatatagg	aggtggactt	ggaggtttgt	tcggagtcac	tggctgcagc	aagtctcctc	120
ccacacagcc	gaccccatc	ctcagacctg	cactctgtac	agcatggcta	ctgaccaact	180
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agatacccag	gcagaggagt	gtgaactctc	agcccctaaa	aagggttttt	ctctattttc	360
catgagttag	gatccatgat	tacagtccag	tccttaagct	ataatctctc	agaaagagga	420
gcgacaagaa	gcggatgtga	gaaagtaaag	agattttcag	gcattaaaag	catggaaaga	480
acaaggcagg	ggagatgcct	acccccctgc	ctggaggact	cttggcgctg	tgctgggtnc	540
acttctggga	aaaaagnct	gaatgnccac	tccatgcct	tctgggtcaa	aanccccc	600
ttgttgtaat	aaagattggt					620

<210> 984
<211> 495
<212> DNA
<213> Homo sapiens

<400> 984

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aactgcacag	acacaaaagg	caaacaggtg	aatacagatc	aacaagttgg	tcagttcttt	120
gctaataagag	ctgagccact	gtcacttgct	atggatgctg	aggccctgaa	caacctagag	180
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tatcacattg	cccagatggc	aacattttct	cagaggacct	aaaatttagc	cccttactga	300
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gagtgaagg	ggcggggtca	ccctaataag	ctgaatcaca	ggagttaact	gctaactcca	420
cctgggcaca	atgggtcaga	ccaaagtcta	aagctcaaaa	cagtaaagca	gacatttaca	480
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<210> 985
<211> 410
<212> DNA
<213> Homo sapiens

<400> 985

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gtaactttgt	ctgaatatga	aggacccgaa	ggaccactga	gattggagac	agaacaaagg	180
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cagaactaca	ggaagaggat	ccctgagtgg	gattcctgtg	tgaaaggcat	tttcaccttt	300
ttgtgtatct	tcagaatctt	aactttcatg	agagaagaat	agaaatgcaa	caatggaaca	360
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<210> 986

<211> 316
 <212> DNA
 <213> Homo sapiens

<400> 986
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 aaatgtatct gcagacaggt caagttcatc gagagtcacc tcctgcctga cactccagtc 120
 attaattcca gccataacta cagcttttat tggacaagag actgatttca gcacttttcta 180
 cagataagaa gaccatcaac catggattgg ttctggccgg tttccagaag atacactggt 240
 acatgccttc atgccttgaa aaggcatttt gatgttttagg gcctagtgtg gatacattta 300
 aatgtctcat ttctcc 316

<210> 987
 <211> 295
 <212> DNA
 <213> Homo sapiens

<400> 987
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 cactgatggc atgcccactg atgtgtatca agtgcacgtc ccgctgcgga aagagacacg 120
 tgttcctcca aaaggcactc tgctttttta ctctcaggtc tcagacaaca aaccaaagac 180
 actcctgaga cttcagcagg agtgcctccag acagtgcagt agcatgtacg atccattcct 240
 tattttctct atgtcatttc cctgcagagt caaacaatg cattcattta aagtc 295

<210> 988
 <211> 426
 <212> DNA
 <213> Homo sapiens

<400> 988
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 caggcatggg ggctcacacc tgtaatccca gcactttggg atgccgaggc agctggatca 120
 cttgtgggtc agagttcaag accagattgg gcgacatgat gaaaccccggt ctctactaca 180
 aatacgaaaa ttagccattg tgggtggcaca cgcctgtaat cccagctact caggaggccg 240
 atgtgggaga actgaacctt ggaggtggag attgcagtga gccaaagatgg cgctactgtg 300
 ctccagcctg ggcaacaaag caacactatg ttttaataaa ataaataagt gctgagatct 360
 cagaaaatac aaaaaaaaaa aggccagcga ggccaattca gnttggactt anccaggctg 420
 aacttg 426

<210> 989
 <211> 327
 <212> DNA
 <213> Homo sapiens

<400> 989
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 catgcttact gccctttata aaagattcaa gcttttctaag ttcaggggtg tgctccctgt 180
 aatgaaacct actgtgtttc caagtatcac ctggccctcc ctcttgatat ccctcttttg 240
 gaactggggc tctaggaact gggaaaggca atgccaatac tctggctatt gctattactc 300
 tgagtaataa aagttcctca tctctac 327

<210> 990
 <211> 475
 <212> DNA
 <213> Homo sapiens

<400> 990
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 tctaatagtg gaacaagggt tgtctgtggt gaacacaata atgtgccatc cagattggcc 120
 ttcaagaagg gacttgctct aactgctaata agtgctgtca acaaaaagcc ttcattggca 180
 gatcttcagg gacctcatca gatgcaaaga gacacttcac ccaatgtcat gtctttccca 240

atgtgatcca	tacccaatga	ctgattaaga	tgggagtata	agggccagac	cactttggtc	300
caaagcagga	caactctgac	aggtcatttt	agtttcagac	ctccccacag	aagccatcaa	360
cactgccact	ggacgaaaac	tgtaactcta	cttctccaca	tgctcaatct	tgnatccttg	420
ctctgccttc	ataaatgttc	atccaagggg	acttccta	aatattctg	catac	475

<210> 991
 <211> 307
 <212> DNA
 <213> Homo sapiens

<400> 991						
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tttaaattct	aaagagtcca	tgttggtgagc	atctcaagga	agtgaggcct	cctgccaatg	120
gccatgtgaa	tgagcttgga	agtggatctt	ccagcctcag	tcaagccttc	agataactgc	180
agccccatct	gacagtgtga	ctgcaaccct	atgaaagaac	ctgggcccaga	accacccagc	240
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ttaacct						307

<210> 992
 <211> 305
 <212> DNA
 <213> Homo sapiens

<400> 992						
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gctaaccctt	ttttggatga	gaatctgtct	tctcatggag	cctaaagagt	tgtgaagatg	120
ggtatggtgg	ctcacagctg	tgatcccaac	acttcggaag	gctgaggcag	acccctgaat	180
tccagcaacc	agtttgaagt	ccccacaga	ggaacgggat	ctgcaagaga	atacagcttc	240
ttcatctccc	tgtcccatga	cttcacccctg	tactctttta	caaataaaca	attgccacac	300
ttcgg						305

<210> 993
 <211> 326
 <212> DNA
 <213> Homo sapiens

<400> 993						
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gagaatatga	acttcgagaa	catctgacct	gctgccacct	ggccagtgtc	ctgcctttga	120
ggagtccagg	atttacaagc	ctgctgttct	caaccttggt	tggcactaac	acaccggaga	180
ccatcagtaa	cggtgggtct	gcaaggcaca	gatcttcacc	agggatcctt	ggggagaaac	240
caagcaaaact	atttcctgac	actagacagg	cgtatccctc	cctttgagaa	aattcacttt	300
ctaaaaccat	aaacaacagc	tggttg				326

<210> 994
 <211> 286
 <212> DNA
 <213> Homo sapiens

<400> 994						
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tgacctcccc	actgccttag	ctttggcaaa	tgaaagaaaa	gcagaagtga	tatgtgtcat	120
attggatgga	aagaattccc	ctgcccttct	cctgtttcag	tgattgcaga	agcactcaag	180
ctgaagcctc	cctcccctgt	gtctatgagt	cactctcatg	agccatactt	gccaccctgc	240
accagacatc	tggcataagt	gaggaataaa	cctctgtgtg	gaatgc		286

<210> 995
 <211> 223
 <212> DNA
 <213> Homo sapiens

<400> 995

ctgggcaaaaa	gagccaatgt	gggttaaacgc	cattccagca	gcacagccga	ggaggagact	60
ccacgtggga	ataaatcaag	ttgaggcaga	aactaaataa	gaccccaatt	ctaattttatt	120
aattcaatct	tttgcctctca	ttttatctaa	cacatgaatc	agttcaattt	ccaagccatg	180
tgtgctttcg	atgtcaaata	tataataaac	taagttttca	ctg		223

<210> 996
 <211> 575
 <212> DNA
 <213> Homo sapiens

<400> 996						
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agcgaaaatc	tgccgcttca	cttctgagcc	cagcgagacc	acgagcccac	caggaggaac	120
gaacaactcc	agacgtgctg	ccttaagagc	tgtaacactc	accgcgaagg	tctgcagctt	180
cactcctgag	ccagagagac	cacgaaccca	ccagaaggaa	gaaactctga	acaccagaag	240
ggacagactc	cagacacgcc	accttaagag	ctgtaacact	caccgcgagg	gtccncggct	300
tcattcttga	agtcagttag	accaagaacc	caccaattcc	gggcacactt	tctctttctt	360
tcttttgcct	attaaacctg	tgctcctaaa	ctcctcatct	gtgttcatgt	tctaaatttt	420
cttggcacga	gatgacgaac	tggggatttt	atccagacaa	tgcgggcgct	tcaacatgtg	480
cactgggtctg	ntatggaaaa	tgggtgnaatc	ctgctaaaac	ttctctgtct	ctgctacaca	540
agtgaacact	gacnttttca	ttttggaaac	atata			575

<210> 997
 <211> 527
 <212> DNA
 <213> Homo sapiens

<400> 997						
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ggagataatc	cacttggtta	tccgcggatg	tgaacataat	ttggaggcag	cagtcactcc	120
agatggcccg	ctgaagctgg	gagtcctgag	ttaatctcaa	gccaaatttc	tcactccctg	180
gaggagcaga	gtggaggggtg	tgtgtgcatg	gagaagtcca	agatttcata	tctggaaaag	240
aagactggga	gaggccagca	tgaatggcca	ctgtcctcgc	caaactctgga	tgggtatgtct	300
taagtgatac	ttgcaccagt	gaagctgaag	atcacaatta	ctgcctcaaa	tactcactgc	360
ctggaaaccg	gccacctctg	ctccaaaaca	agggcttgct	atgtgctgac	cttgtgtcca	420
agctccaccc	ctgctgcttg	ttccaacngt	cttgctctct	gtcttctctc	aatccgactg	480
cagtgggggtt	ggcaagtgtg	ngtgtggggg	gtgggaagtg	gagatgt		527

<210> 998
 <211> 373
 <212> DNA
 <213> Homo sapiens

<400> 998						
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cagcctctga	gtacctgggg	ctacagatgc	atggccacca	caccagggga	aagtgtttac	120
ctcaactgcc	aatttacgga	ggatctctgt	ggatggtaaa	tcagagaaga	gtgtgaaagg	180
attatgagca	ggagaatgac	atatttggac	tatgtcccag	agagacaaca	ctgatgataa	240
tgaatataat	cggttgaaag	agaacaccag	aacactgttt	agaaggcaac	tataacatct	300
caaattagtg	acgactgtca	tctgaaccat	ggagaagatt	ttctaaaata	aaactagtag	360
gaatttgtga	ctt					373

<210> 999
 <211> 332
 <212> DNA
 <213> Homo sapiens

<400> 999						
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tgccaagctc	tccatggcat	attatgctgc	cttccaagtg	ccttaggctg	tgtgttgact	120
ggggcatcct	ctctgcaatc	atggctgtga	gtgatagggtg	gacttgccaa	ctccctgatt	180
acctgccatc	catggaaagt	caacacctaa	atatgttgtc	ttatactact	agataatata	240

tgactattat actgcaaata atctttttga agcaaattat aggaataaat tgagactaag	300
aacaataata aacttgggaa atttacaaag gc	332

<210> 1000
 <211> 556
 <212> DNA
 <213> Homo sapiens

<400> 1000	
caacgtgatg gctgcagtcc agcatccatt gtggaccatg aggcaatctt gagaatggaa	60
accatacaat acaatagtca aagaggaaag gttggatcga tcagtgaagt ttcacagaag	120
ttgtgacatt tgggttggat cttgaaagat aatgggagct ttgaagggtga atgaaaaaag	180
aagtggaaaga acattcctgg tagatggaaac agcatatgcc aaagcacaga ggtccacatt	240
gcctttatga gctgtaatac tcaactgcga ggtctgcagc ttcactcctg aagccagcga	300
gaccacgaac ccaccgggag aaatgaacaa ctcccacgcg cggnccttaag aactgtaaca	360
ctcacggnaa aggtcgcact tcaacttctga gctacgagac nccaaccnc naaaaggaaa	420
aacttccgac ccttccgaca ttcanaagga ccaactccaa cccccncctt aaaagttgac	480
cttncccgga aggggtccggg gntttttnt tgaatccgng gaaccaaaan ccnccattcc	540
ggcccgagttt tacccc	556

<210> 1001
 <211> 232
 <212> DNA
 <213> Homo sapiens

<400> 1001	
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gcctcttgga gtctcagtga gaaaacacca agaaccctc aaggagcagc tgcaggtgaa	120
gcgacgacat gcacagcatg catcagaccg cgctggacag aggcgcttgt tctgtttct	180
acctctcccc acttcagagg attccttcaa taaaaatcaa tttccaaaca ag	232

<210> 1002
 <211> 467
 <212> DNA
 <213> Homo sapiens

<400> 1002	
ggagctcctg cttnagtncn aactgaggac ttttacanag gaagggaaac tcaactagac	60
cacctcagat gtcataaaga aactgactt ggcaccagaa gatctgtact cagtcctaa	120
ttcttcaatt taacaagctt tgtggccttg gagaaactgg ctgacatttt tgagcttcag	180
ttttcacctt tgtaaaatga tgcagttgga ctttcctact ggtcctcaaa cctttgtgtc	240
atgcattcta tcaacgtttg aactctgtcc ttaccagcca gtttcatccc cactctgatt	300
ntcctcctt ccaaccaaag aataaaagca gcaagcaaga aatctccttt tccaagcatg	360
acacttacat gtttataggc tgnctatggc cttttcata atttgngctt ttcaattttt	420
tttctgggat ttaagtttta aaagaataaa ttttatcatg aatctat	467

<210> 1003
 <211> 124
 <212> DNA
 <213> Homo sapiens

<400> 1003	
aaangcatgg ctntgcctcc tcatttgaag ccactcang attgataata aagaaagtaa	60
ctttgaagta aacagggcca gtcttatgag tcttgagta ataaaatgat tctgtgcttt	120
gctc	124

<210> 1004
 <211> 530
 <212> DNA
 <213> Homo sapiens

<400> 1004

actggacaag	ccggcaccac	cccatgattc	aaggatggcc	atagcccagt	gcaggagcag	60
atttgcttcc	agtttgcct	tcttcctagc	tgaactccag	gtccagccc	agagaagcaa	120
gaaaagagca	aacagaagtt	attcacatgt	gcacagaca	cgcaatccat	accacagcca	180
ccagggtgat	tgtccaggtt	gtattttctg	tgacatcgac	ccttcattgc	ttcctcttgt	240
tgacccttcc	agctacacct	agctcgggtc	tcttcagagc	cacgccaaca	cccagggttc	300
tctgcagtgc	atccccatgg	ggattttacc	ggccccaca	tgccagacca	tcgttgggtg	360
acctcatcac	cagcatgaag	tgggtctctg	gagttgtcga	ctgactagtt	cacaattagt	420
gactcatagc	atctcactna	tttcttttca	tcaagtagga	ggnagcaagt	ctgcactttt	480
gcacacatt	ttaaaaaanat	ctgggngggt	gtttttttgc	ccaaaactaa		530

<210> 1005
 <211> 336
 <212> DNA
 <213> Homo sapiens

<400> 1005						
gggggagaca	gagctcact	atgtcactga	agctggagtg	caatggcatg	atctcagctc	60
actgcaacct	ctgcctccca	ggttcaagtg	actctcttgc	ctcagcctcc	tgagatgtgc	120
tccaccatgc	ctggggaatt	tttctatttt	tagtagagac	aggggtttac	catgttggcc	180
aggctgggtc	cgaactcctg	acctcgtgat	ccaccaccca	tggcattcca	aagtgtctgg	240
attataggcg	cgagctgctg	cacctggccc	cgggttctct	ttgtgacaaa	tttcttcatt	300
tgacaaaata	aaagaaagaa	tttcagtaca	aaaatc			336

<210> 1006
 <211> 534
 <212> DNA
 <213> Homo sapiens

<400> 1006						
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acgtccacct	cccagattca	agcaattctt	cggcctcagc	ctcctgagta	gctgggatta	120
cagatgtccc	ccaccacgtc	cggctaattt	ttgtattttt	agtagagacg	gggttacacc	180
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agtgtctgaga	ttacaggcgt	gagccaccac	gcccagctga	aactgttctt	taaactgggt	300
agcctatacc	aatgtaaggc	aatgttgagg	agtagatgcg	gcctctttcc	tcaaagagag	360
atccagaaaa	ggcttctgaa	aacccaagac	acttgaagat	cattgtcctc	tancaagtct	420
gaacaccatg	gagaggccac	agctgtgaaa	aaaagaaaaan	gatgggcccc	ggttttacca	480
angggccent	tcctggaatg	aaaagggaaa	aaaccnnct	ttaaaaaaag	agcc	534

<210> 1007
 <211> 276
 <212> DNA
 <213> Homo sapiens

<400> 1007						
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cacatgggtc	tggccaagac	agtccagcca	acctctcagc	caacagctag	catcaaagcc	120
cagaatgatg	agggagcaag	cctttgggat	attccagcaa	ccagcttttg	agctgcccc	180
actgagattc	catggtggca	cctggtggca	cagagacaag	ctgccccacc	acgccctttc	240
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<210> 1008
 <211> 327
 <212> DNA
 <213> Homo sapiens

<400> 1008						
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aagnncggga	aaaaaaaag	ccacctggcc	ccagggtcaa	aacctttgat	tgaananagc	120
nccnctaaa	aaactgtttt	gcagaatcaa	atgccacaga	naagcanggt	aaaatcaggg	180
gtggaaaaaa	gaaccgcctg	gggtccctgg	tcactttttg	tcctcatgtt	tcctttggca	240
ttaataagaa	atttaccana	atgcnttttc	gatnggatac	caaagaagac	attctgggggt	300

taataaaata acctttttgt aattatg

327

552207"42932460